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POLSKA AKADEMJA UMIEJĘTNOŚCI

PRACE KOMISJI ORJENTALISTYCZNEJ NR 23
MÉMOIRES DE LA COMMISSION ORIENTALISTE No 23

ANTONI ŚMIESZEK

SOME HYPOTHESES CONCERNING THE PREHISTORY OF THE COPTIC VOWELS

KRAKÓW
NAKŁADEM POLSKIEJ AKADEMJI UMIEJĘTNOŚCI
SKŁAD GŁÓWNY W KSIĘGARNIACH GEBETHNERA I WOLFFA
WARSZAWA—KRAKÓW—ŁÓDŹ—POZNAŃ—WILNO—ZAKOPANE
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1936

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Drukarnia Uniwersytetu Jagiellońskiego pod zarządem J. Filipowskiego

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I

Introductory

The vowel mechanism of the Coptic language is ruled by two main laws. The first of these governs vowel-sounds as they occur in accented (stressed) or in unaccented (unstressed) syllables, the second affects them in accordance with the no less important consideration of whether the syllable containing the stressed vowel is open or closed. The former may be termed the law of stress, the latter that of the syllable-end. In both respects, as well as in several others, there exists a curious, though purely accidental, resemblance between Coptic and English phonetics. The Coptic, like the English, word contains only one fully articulated vowel, that of the stressed syllable, meaning the syllable which, in the original Primitive Egyptian form of the word, bore the main stress. All those syllables which had a weaker (secondary) stress in the parent language, have in Coptic, without regard to their original quality and quantity, one and the same reduced or obscure vowel, which corresponds to the Hebrew *šᵉwā* (*mobile*) and is denoted in *good* Coptic orthography by means of a small dash or dot above the line. This diacritic was placed either above the first consonant of the word (if that consonant was preceded by a prosthetic *šᵉwā*) or above two consonants (if they were separated by *šᵉwā*).

It has long been the custom of Coptic, as of Hebrew, scholars to indicate the *šᵉwā* in their Latin transcription by means of a small ᵉ. I venture to think it would more properly be represented by ᵊ or ᵻ (i. e. weak central vowels with the height of tongue of *a* or *i* respectively)[1]. For, in my opinion, the Egyp-

[1] The symbol ᵊ is here used to indicate a fairly wide, or

tian reduced vowel oscillated between ᵊ and ᵻ, being rather more similar to the obscure vowels of English (cf. *about* = ᵊbą̊ut, *beloved* = bᵻlą́vᵻd) than to those of French (cf. *petit* = pᵊtí, *regard* = rᵊgâr). This may be inferred from three phonetic, or spelling, peculiarities, viz.:

1⁰. When, owing to the loss of a final sound or sounds, the reduced vowel stands at the end of a word, it appears in two Coptic dialects (S. and A.) as *-e*, and in two others (B. and F.)[1] as *-i*. The former spelling may either be regarded as the graphical representation of *-ᵊ* (that sound, when final, being generally written *-e* by the Copts), or it may be supposed that the original *-ᵊ* had undergone a real phonetic change to a (rather more close) front vowel of the *e*-type, and was therefore indicated by the letter *e* in A. and S. The *i* of B. and F. is likewise either a mere graphical symbol denoting the obscure vowel-sound ᵻ, or it had a real, i. e. phonetic, *raison d'être* in an articulatory shift from the middle of the tongue towards the front, the front of the tongue being at the same time raised a little further towards the hard palate. Both these sound-changes (*ə* ⩦ *e*, and *ɨ* ⩦ *i*) are easily accounted for[2].

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open, central vowel, of the type denoted by the International Phonetic symbol (ʊ), like the final vowel of such English words as »Russia«, »China«.

[1] The Southern dialects are the Ṣaʿīdic (from Arabic *eṣ-ṣaʿīd* 'upper land'), or Upper Egyptian, and the neighbouring Akhmīmic (from the town of Akhmīm in Upper Egypt, the Chemmis or Panopolis of the Greeks). The dialects of the North are the Bohairic (spoken in the delta-land, called in Arabic *el-boḥaiṛa* 'land by the sea'), or Lower Egyptian, and the Fayyūmic (spoken in the oasis of Fayyūm). In the present work, the four Coptic dialects will be designated by the abbreviations S. (Sahidic), A. (Akhmimic), B. (Bohairic), F. (Fayyumic). The variety of Coptic known to scholars as sub-Akhmimic will be designated as A_2. Eg., P. Eg.. Prim. Eg. stand for Egyptian, Parent Egyptian, Primitive Egyptian respectively.

[2] Cf. the Eg. fem. *nfr-t* 'bona' and, as a noun, 'bonum', pronounced at a certain (relatively late) period **nåfrᵊ(t)* or **nafrᵻ(t)*, and extant in Coptic as S. *nofre* 'advantage', A. *nafre*, B. *nofri*, F. *nabre* (which should probably be emended to **nabri*); or Eg. *nṯr ntr* 'god' = **nåtᵊ(r)* or **nåtᵻ(r)* ⩦ **nūtᵊ(r)* or **nūtᵻ(r)* ⩦ S. A. *nûte*, B. F. *nûti*; the fem. *nṯr-t, ntr-t* = ***ntūrᵊ(t)* or ***ntūrᵻ(t)* ⩦

2⁰. When occurring at the beginning of a word, or in the proclitic position known as *status constructus* the same reduced vowel is, in Coptic, written either *e-* or *a-*[1], which is again most readily intelligible if we start from ᵊ or from a sound between ᵊ and ʳ; for ᵊ, being a central vowel, may as well pass into *e* as into *a*; and this is how the instances quoted in note [1] ought to be interpreted: **ᵊbŏt* 'month' ⇌ S. *ᵉbŏt* ‖ B. *ᵃbŏt*, **ḥᵊt* 'house' (*status constructus*) ⇌ **ḥᵊt-* ‖ **ḥᵃt-*, etc.

S. *ᵉntōrᵉ*, B. *ᵉnthōri* (the phonetic changes that have occurred here will be explained later; for the transcription of Coptic ⲱ by *ō* see below).

[1] Cf. S. *ebŏt*, A. *ebăt* 'month', but B. *abŏt*; or **ḥᵃt-hūr(ᵊw)* 'House of Horus', the name of the sky-goddess Hathōr (the Ἀθυρις of the Greeks and the *(h)athŏr* of the Copts), but **ḥᵊt-nätrᵊ(w)* 'house of the gods' ⇌ **ḥᵊn-nätiᵊ(w)* (by double assimilation), written in Coptic (S.) *hĕnĕĕte* 'monastery', etc.

The same relation seems to occur between the cuneiform *Ḫikuptaḥ* 'Memphis' and the Greek Αἴγυπτος; I interpret the former as **Ḫikkuptaḥ* = Eg. **ḥʳkkuptaḥ* ⇐ **ḥʳt-ku-ptaḥ* 'house of the spirit (or soul) of the god Ptaḥ', and regard the Greek form as changed from **Ἀγγυπτο-ς (read Agguptos), deriving it from Eg. **ḥᵊkkuptaḥ* ⇐ **ḥᵊt-ku-ptaḥ*. The Greeks, who had no short open ᵊ in their language, substituted *a* in its stead; for Greek ε was short, but close, Greek η, on the other hand, though open, was long.

However, another explanation of Αἴγυπτος seems possible. The initial *α* may be regarded as the Greek reflex of a transitory glide between the glottal fricative *ḥ* (which the Greeks could not pronounce) and the ʳ of **ḥʳkkuptaḥ*. In this case the Greek name would be derived from the same Eg. form as the cuneiform transcription.

Furthermore, the name of the Lower Egyptian town *pr-ỉtmw* 'House of (the god) Atum' (the Πάτουμος of Herodotus) appears in B. as *pethŏm*, whence A. borrowed it as *pithŏm* (= **pitthăm*, cf. the *piṯŏm* of the Hebrew Bible). This can only be explained if we assume that the Lower Eg. (B.) pronunciation of the name was neither **pᵊtthåm* nor **pᵉtthåm*. but **pʳtthåm*.

Another case in point is the numeral '90', *pᵉstaju* (S.), which I interpret as **pᵊstáiju*, deriving it from **pᵊstajjᵉw*, and this from **pᵊstéwjᵉw*; the B. form *pistéwwi* (= *pᵉsteu̯u̯ᵉ*), on the other hand, can only mean **pʳstéu̯u̯ʳ*, derived from another dialectal form, viz. **pʳstewjʳ(w)* ⇌ **pʳstewwʳ(w)*.

3⁰. The cuneiform writers, Semite and Hittite, who, in the well-known texts of El-ʿAmārna and Boghaz-köi (of the XIV. and XIII. centuries B. C.), have preserved a good many Eg. words in fully vocalised transcriptions, usually indicate this reduced Eg. vowel by *a* (more rarely *u* or *i*). Thus they write, e. g., *ḫāra* = Eg. **ḥâr³(w)* 'god Horus' (later Ὧρος among the Greeks, and *hōr* among the Copts, extant in the name S. *hathōr*, B. *athōr*); *ʾāna* = Eg. **ʾân³(w)* 'Heliopolis' (Coptic *ōn*, Eg. *ỉwnw*, the first *w* of which is in all probability a late Eg. *mater lectionis* for *â*); *nâta* = Eg. **nâṯ³(r)* 'god' (Coptic *nûte*, *nûti*, hieroglyphic *nṯr*, *ntr*); *nâpa* = Eg. **nâf³(r)* 'good, beautiful' (Coptic *nûfe*, *nûfi*, hierogl. *ʾnfr*); *mû'a* = Eg. **mûʿ³(t)* 'truth' ⇐ **mwʾ³(t)*, hierogl. *mʾ-t*[1]; *ria* (probably for **rî'a* or **rîja*) = Eg. **rîʿ³(w)* 'sun' and 'sun-god' (in hierogl. only *rʿ*, Coptic *rî* (A.), *rē* (S. B.)).

Transcriptions such as the above show that the cuneiform writers, who did not possess special symbols for open *o* = *â*, nor for open *e*[2], made shift to represent both these vowels by *a*, evidently realising that both open *o* and open *e* are akin to *a*.

The three features described in the foregoing suggest that the Eg. and Coptic *šʷwā* (*mobile*) was, according to dialect, a sound approaching either *ə* or *ï* (= Welsh and Polish *y*, Russian *ы*). Having arrived at this conclusion, I have nevertheless decided to respect a custom so long and generally followed by all Coptic and many Egyptian scholars and to retain the traditional nota-

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[1] The only form extant in Coptic is the variant **mi'ʿ³(t)*, which bears the same relation to **mu'ʿ³(t)* as the Semitic types *ḳítl-at-u*: *ḳútl-at-u*. Its evolution was as follows: **mi'ʿ³(t)* ⇒ **mîʿ³(t)* ⇒ **mî'³(t)* ⇒ A. *mîe* (sub-A. *mēe*), B. *mēi*, which was probably pronounced *mē-ji* or *mī-ji* (dissyllabic), S. *mĕ*, written so inaccurately instead of *mē* ⇐ **mēe* = *mîe*, for the Copts represent *ī* either by ι or by η.

[2] They did not even possess a symbol for close *o*, which they represented by the same symbol as *u*; nor did they make any difference between *i* and *e*, employing both symbols at random: *i* was written for *e*, and *e* for *i*, which implies that cuneiform *e* must have represented a fairly close vowel. Hence it could not be adapted to denote the open *ə* of the Eg. words quoted above. The cuneiform writers had no other means of indicating such a vowel but by writing *a* for it.

tion; I shall therefore continue to employ the symbol ᵉ. It must, however, be borne in mind that this ᵉ ought to be interpreted as ᵊ or ʳ, or as a sound intermediate between the two.

This reduced vowel of the Coptic language, whose hypothetical value I have endeavoured to determine in the foregoing, arose in two cases. In the first place, the reduction affected all those vowels which, in the prehistoric forms of words in the parent language, bore a secondary stress, always separated from the chief stress of the word by one unstressed syllable. Secondly, the same reduction (to *šᵉwā*) affected some of those vowels which were originally quite unstressed, namely such as occurred originally (in that most ancient period of P. Eg. when all the original endings were still in existence) in the penult, and only later (in the next period of Prim. Eg., when the loss of the original endings had set in), found themselves (owing to this loss of endings) in the *ultima*. In such an original penult which had subsequently (after the loss of the endings) become an *ultima*, every vowel, even though quite unstressed, underwent the same reduction into *šᵉwā* as the weakly stressed vowels. Apart from this special position, all those vowels which were originally (in P. Eg.) quite unstressed underwent complete reduction (to the stage of zero), i. e. they disappeared altogether.

Thus there were two reductions, one incomplete (resulting in *šᵉwā*), the other complete (resulting in zero). The first reduction, or reduction of the first degree, affected (to sumarise this in brief) all those syllables of P. Eg. which bore a secondary stress, as well as those unstressed vowels which occurred originally (before the dropping of the inflectional endings) in the penult, and subsequently (after their disappearance) in the last syllable of the word. The reduction of the second degree, resulting in complete disappearance of the vowel, affected (already in Prim. Eg.) all other originally (in the most ancient forms) quite unstressed vowels, i. e. all those vowels which (in the most ancient forms) occurred between two accents (the main and the secondary stress), that particular position being the weakest possible, and therefore the one most likely to lead to the entire disappearance of the vowel.

One example will suffice to illustrate what has been said:

Eg. **nā̆tir-u* 'god'[1] ⇒ **nā̆tir*[2] ⇒ **nåtᵉr*[3] ⇒ **nōtᵉ(r)*[4] = S. *nū́te*, B. *nū́ti*, has a twofold plural, derived from two different stems, viz. either **nítir-å̀w-u*[5] ⇒ **nitrᵉw*[6], or **nåtī́r-åw-u*[7] ⇒ **nīrᵉw* ⇒ **ᵉntīr(ᵉw)*[8] ⇒ S. *ᵉntēr*[9], B. *ᵉnthēr*[10].

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[1] This form corresponds to the Semitic type **ḳátil-u* (intransitive participle), hence 'being such and such' (according to the meaning of the root *nṯr*, *ntr*). It must be understood that, as I have shown in my treatise 'An Attempt at Determining the Principles of Egyptian Word Stress', the stress was, in P. Eg., upon the first long vowel — whether long by nature or by position — counting from the *end* of the word, or, if all syllables were short, upon the initial syllable.

[2] Loss of case-ending.

[3] Lengthening of stressed vowel in open syllable and reduction of unstressed vowel in ultima from earlier penult. Hence reduction of the first degree (to *šᵉwā*, not to zero).

[4] Eg. *å* was, from a certain era onwards, narrowed into *ǭ*, and even into a sound half-way between *ō* and *ū*, written by the Copts in two ways: either by means of *ō-mega* or by means of *ŏ-mikron* + *u-psilon*.

[5] From the stem-variant **nítir-*, which bears the same relation to **nā̆tir-* as the Semitic type *ḳítil-* to *ḳátil-*. Without wishing to enter upon the problem of the vocalisation of the Eg. plural suffix (to which I am devoting a special treatise), I shall, in the present work, designate that suffix in the conventional way as **-åw-*; similarly, the suffix of the feminine will be designated as **-åt-*.

[6] For the further development of this plural see below.

[7] Again from another stem: **nåtī́r-*, beside **nā̆tĭr-*, cf. the relation of the Semitic types *ḳatī́l-* ‖ *ḳátĭl-*.

[8] At a certain period in the history of the language, groups of two consonants were admissible at the beginning of Eg. words. At some later period, however, they were felt to be inconvenient, nay unpronounceable in that position. In order, therefore, to facilitate their pronunciation at the beginning of words, a prosthetic vowel was prefixed during the later period. This vowel, quite unstressed and reduced, of indistinct ('neutral') quality, and of very short duration, may properly be termed the initial or prosthetic *šᵉwā*. It was probably pronounced without an initial *'āleph* (glottal stop), or, as German scholars put it, 'mit leisem Ansatz'. The Coptic orthography has no uniform symbol for it. Sometimes we find it written *e-*, sometimes it is represented by a dash or dot above the first consonant, at other times it is left entirely unmarked. Notwithstanding this inconsistency of the

It appears from the above that the vocalisation of unstressed syllables was, in Coptic, extraordinarily simple, in fact quite uniform. The same reduced vowel, *š*wā*, appears in all such syllables. The accented syllables, on the contrary, display in this respect an incomparably greater, sometimes bewildering, variety. Above all, as was pointed out at the outset, the difference between open and closed syllables is here strongly marked. The vowels of the former are always long, those of the latter always short. All originally (i. e. in P. Eg.) short vowels, if they stood in open syllables, were lengthened at a certain period (which I am unable to fix chronologically); and vice versâ: all originally long vowels, if for certain accentual reasons they had come to stand in closed syllables, were automatically shortened. This being so, every original stressed vowel occurs in a twofold shape: long — in open syllables, short — in closed syllables.

Assuming that the same case-endings as in P. Semitic existed also in P. Eg. (nom. *-u*, gen. *-i*, acc. *-a*), but were dropped in the latter language at a very early time (probably already in Prim. Eg.; a trace of their presence seems to be preserved in certain special forms, mentioned below), the quality of the syllables of words changed at that early time in consequence of the disappearance of the case-endings: originally open syllables became closed. Let us imagine, for example, some word of the type *ḳatil-u*. It consists of three open syllables; if the ending *-u* is dropped, the first syllable of the now dissyllabic word will remain

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spelling the prosthetic *š*wā*} is, in the present work, always indicated in the transcription of Coptic words beginning with a biconsonantal group, no matter how or whether it is shown in the Coptic spelling. In this I follow Sethe, *Die Vokalisation dés Ägyptischen* = Sonderabdruck aus der *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, Bd. 77, N. F., Bd. II, 1923 (especially pp. 194 ff.).

[9] As will appear later, I regard the Coptic *ēta* as *ī* (pronouncing, e. g., **ntīr*, **nthīr*), although I transcribe it, in accordance with the existing tradition, by *ē*.

[10] In the Bohairic dialect, the plosives *p*, *t*, *k* were aspirated (*ph*, *th*, *kh*) before stressed vowels, and also before the semivowels *i* and *u*, before the liquid consonants *m*, *n*, *l*, *r*, and before *b*; cf. M. Chaine, *Eléments de grammaire dialectale Copte* (1933), §§ 14 and 92.

open, but the second will henceforth be closed. The same thing happens whenever an unstressed vowel undergoes complete reduction, i. e. disappears. But, as has been said before, in Eg. the quantity of vowels depends upon the syllable-end: long vowels occurred only in open syllables, short vowels only in closed syllables. Any change of the syllable-end, therefore, was followed by a corresponding change in the quantity of the vowel. To illustrate this, let us take the conventional stem-types *ḳitil-* and *ḳitīl-* and form from either of them the singular and plural. In Eg., these forms would develop as follows:

1 *a* (sing.) **ḳítĭl-ŭ* ⇌ **ḳītĭl* ⇌ **ḳīt^{e}l.*
1 *b* (pl.) **ḳítĭl-å̀w-ŭ* ⇌ **ḳĭtl^{e}w.*
2 *a* (sing.) **ḳĭtī́l-ŭ*[1] ⇌ **ḳĭtī́l* ⇌ **ḳtĭl* ⇌ **^{e}ḳtĭl.*
2 *b* (pl.) **ḳĭtī́l-åw-ŭ* ⇌ **ḳtīl^{e}w* ⇌ **^{e}ḳtīl^{e}w.*

As the above schemes show, the historical Eg. vowels, both short and long, have a double source as regards quantity: short vowels are descended from vowels originally long or short by nature in closed syllables, and long vowels are descended from vowels originally short or long by nature in open syllables. All this, of course, is true only of stressed vowels, i. e. such upon which rests the main stress.

In our further study of the history of the Eg. vowels we shall choose as point of departure the stage at which the changes of quantity described in the foregoing have already taken place; it must only be borne in mind that every Eg. vowel, whether short in a closed or long in an open syllable, is, as regards quantity, of twofold origin. Chapte II of the present treatise contains an account of Prim. Eg. long *å̄* and *ū*, chapter III — of Prim. Eg. short *å*, chapter IV — of Prim. Eg. short *ŭ*, chapter V — of Prim. Eg. long *ī*, chapter VI — of Prim. Eg. short *ĭ*, chapter VII treats of the simplification of Eg. geminated consonants after *š^{e}wā'*, and chapter VIII gives an account of the Eg. and Coptic diphthongs.

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[1] For the accentuation see the later notes.

II

The Evolution of Prim. Eg. $\mathring{a}$ and $\bar{u}$

Like every other genealogy, that of the Coptic vowels is most easily ascertained by way of deduction, i. e. by starting from the original state of the parent language. But there we are faced, at the very outset, by the difficulty that this original state is not directly known to us. We can only reconstruct it by starting, on the one hand, from the Coptic state of things and receding from it (through the intermediate stages represented by the Greek and cuneiform transcriptions) into the remotest possible past, and, on the other hand, by utilising the established facts of the original vowel system of Parent Semitic, this being the language most nearly related to Primitive Egyptian. Thus, by combining the Coptic facts (and, to a certain extent, the Greek and cuneiform transcriptions) with the generally accepted data of comparative Semitic philology, and basing my inferences on this twofold, as it were bipolar, evidence, I will here endeavour to trace the evolution of the (accented) Egyptian and Coptic vowels. Needless to say, I shall have to confine myself to the merest outline, any more detailed picture being out of the question in the present state of our knowledge.

Scholars hold that Parent Semitic possessed only three short vowels ($\check{\imath}$, $\check{a}$, $\check{u}$) and three long ones ($\bar{\imath}$, $\bar{a}$, $\bar{u}$). Combinations of two short vowels in one syllable resulted in the diphtongs $a\underset{\smile}{\imath}$, $a\underset{\smile}{u}$, $i\underset{\smile}{\imath}$, $u\underset{\smile}{u}$. Already in the parent language $i\underset{\smile}{\imath}$, $u\underset{\smile}{u}$ underwent contraction into the monophthongs $\bar{\imath}$, $\bar{u}$, which were completely identified with the long vowels $\bar{\imath}$, $\bar{u}$.

The close linguistic affinity of the Egyptians with the Semitic group is a generally acknowledged fact. Hence we may confidently postulate the same system of three long and three short vowels for P. Eg. also. But there arose at the very outset two remarkable differences between the vowel system of P. Semitic and that of P. Eg., differences which had far-reaching consequences.

In the first place, while Semitic $\check{a}$ was really a clear *a*-sound, the Eg. $\check{a}$ came to be pronounced with a backward

pronunciation: **p-atûm* or **-p-ᵉtôm*[1], **ḥᵃt-ḥûr* or **ḥᵃt-ḥôr*[2], **nᵉbt-ḥū* or **nᵉbt-hō*[3], **p-ᵉk'-ūš* or **p-ᵉk'-ōš*[4], **ᵃ'būd* or **ᵃ'bōd*[5], **t-ᵉntūrᵉ(t)* or **t-ᵉntōrᵉ(t)*[6], **tūbᵉ* or **tōbᵉ*[7], **pᵃ-'ūnᵉ* or **pᵃ-'ōnᵉ*[8]. Greek *ū*, written υ or ου, may, of course, just as well be supposed to reflect an Eg. *ū*-sound as an Eg. long and narrow *ō*, for which there was no exact equivalent among the letters of the Greek alphabet. If we adopt the latter theory, viz. that the Eg. vowel-sound under consideration was a close *ō*, the Greeks might easily have ignored its quantity (as they did elsewhere) and represented it by means of *ŏ-mikron*, which denoted a close, though short *o*-sound. Yet they chose to render the Eg. vowel by means of ου or υ (= *ū*). This was surely because the vowel resembled a cardinal *u* more than a cardinal *o*, or in other words, because its articulatory channel was narrower than that of the Greek phoneme represented by *ŏ-mikron* (that Eg. *ō/ū* was not quite cardinal *u*, will be shown presently).

The cuneiform transcriptions, then, render it probable that the narrowing of Eg. *å* to *ō* did not occur before the fourteenth, but was an accomplished fact in the seventh century B. C. The narrowing continued throughout the Greek and Hellenistic age, and the sound given to the Eg. *ō*-phoneme in those later times may be supposed to have been similar to the over-rounded Swedish vowel of such words as *ko* 'cow', i. e. a vowel-sound intermediate between cardinal *o* and cardinal *u*, but more closely resembling the latter. This late Eg. sound may be designated by the symbol *ō/ü*. If the evidence of the Coptic spelling may

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[1] The Eg. *pr-ỉtm* 'House of Atum', name of a town in Lower Egypt (in the Eastern Delta), called *piṯôm* in the Hebrew Bible.

[2] The name of the sky-goddess Hathor, meaning literally 'House of Horus', the sun-god.

[3] Literally 'Mistress of the Palace' (nb. (*t-ḥ.t*); the defective hieroglyphic spelling *ḥ-t* ought, I believe, to be interpreted as **ḥ'-t* = **ḥū'ᵉ(t)* ⇌ **ḥū(t)*, written in Coptic *hō* or *hū*.

[4] Eg. **ᵉk'-ūš* or **ᵉk'-ōš* 'Nubian, Ethiopian', preceded by the masculine article.

[5] The sacred city of Osiris, in Upper Egypt.

[6] Abridged from **nit-t-ᵉntūrᵉ(t)* or **nit-t-ᵉntōrᵉ(t)* 'city of the goddess (τῆς θεᾶς)', scil. Hathor; today Dendera.

[7] The fifth month of the Egyptian year.

[8] The tenth month of the Egyptian year.

be trusted, the over-rounded Eg. *ō* (= *ō/ū*) lasted down to the Coptic era, never definitely becoming cardinal *u*.

When considering problems connected with Coptic orthography, it must be borne in mind that vast changes were going on in the pronunciation of some of the Greek phonemes during the age which saw the adaptation of the Greek alphabet to Coptic writing, and that, as is usual in such cases, the phonological evolution was concealed by the uniformity of the spelling. Thus it came to pass that the letters of the Greek alphabet were, in the current pronunciation of the Hellenistic age and of the first centuries of our era, when the Greek writing was transplanted to Egyptian soil, sounded differently from what had been the usage, say, of the fifth century B. C. It is, for instance, known that in the earlier times the Greek *ŏ-mikron* had represented a short and narrow vowel, and the *ō-mega* a long and wide one. But from the beginning of the second century B. C. onwards these differences disappear. I refer the reader to Edwin Mayser's exhaustive work *Grammatik der griechischen Papyri aus der Ptolomäerzeit mit Einschluß der gleichzeitigen Ostraka und der in Ägypten verfaßten Inschriften* (1906), where we read on p. 97: 'The quantitative and qualitative difference of the two *o*-sounds (ω open and long, ο close and short) becomes obliterated since the beginning of the second century B. C., ο and ω are frequently confounded', — and on p. 117: 'The frequent instances of confusion between ο (ω) and ου suggest that at that time there existed a tendency towards close pronunciation of the *o*-sound in general'.

In the first centuries of our era, therefore, the Greek *ō-mega* and *ŏ-mikron* + *u-psilon* represented more or less the same sound, which might, in agreement with Mayser's argument, be transcribed *o/u*[1]. Two signs would then be at the disposal of the Copts searching the Greek alphabet for a suitable symbol to render their long *ō/ū*, viz. ω and ου (for reasons explained below *ŏ-mikron* was not available for the purpose). They could write their native words

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[1] This, too, enabled the LXX to use the Greek *ō-mega* for transcribing the long, narrow *ō* of the Hebrew in such names as שִׁילֹה = Σηλώ(ν); יְרִיחוֹ (יְרֵחוֹ, יְרֻחוֹ) = Ἰεριχώ, שְׁלֹמֹה = Σαλωμών, פַּרְעֹה = Φαραώ(ν), etc. etc.

containing the phoneme *ō/ū* in two ways: namely with *ō-mega* or with *ū* (*ŏ-mikron* + *u-psilon*). And this they actually did, cf. S. *jōt* || *jūt* 'barley'; B. *čōr* || *čūr* 'spark, smoke'; S. *ǧō* || *ǧū*, A. *ǧū* 'mug'; S. *hōs* || *hūs*, B. *hōs* (also written *hŏs*) 'string, necklace, surveying-chain', etc. On the whole, however, a certain »orthography« was evolved in the course of time, one mode of spelling alone becoming fixed in every particular word. This orthographical diversity, combined with the tendency to set up certain norms, can only be explained by assuming that special schools arose in different regions of Egypt (probably attached to the monasteries), and that these schools proceeded independently of one another to lay down rules of spelling binding their pupils and adepts. The A. dialect shows a marked preference for the symbol *ū*, while the other dialects prefer *ō-mega*. There are cases, however, where *ū* is used throughout, particularly after *m*, *n*, to some extent also after *š*, *č*. *ǧ*. In my opinion, these differences in the use of the two signs are merely orthographical: both of them represent one and the same Coptic phonemo (there is no denying the probability of regional, as well as combinatory, oscillations of pronunciation). As has been shown in the foregoing, this phoneme was sounded as a vowel intermediate between cardinal *o* and cardinal *u*. The best transcription would, therefore, seem to be *ō/ū*, but I will stick to the generally accepted mode of transcription, transliterating the Coptic *ō-mega* by *ō*, and the Coptic *ŏ-mikron* + *u-psilon* by *ū*. The symbols *ō* and *ū* are sometimes doubled in Coptic, evidently in order to indicate vowel-length more clearly. But such alternative spellings as S. *hōk* || *hōōk* 'to gird, arm, saddle', or A. *šūt* || *šūūt* 'to cut off, break stones (in a quarry), kill' show that the use of one or other of these modes of spelling is entirely determined by the orthographical habits of the scribes, and that no phonetic differences are concealed by them.

Another long vowel of Prim. Eg. was *ū*; this close vowel could hardly be narrowed further; it remained, as far as we know, unchanged down to the latest (Coptic) times. But, as we saw above, Prim. Eg. *å* had become *ō/ū*, i. e. a very narrow variety of *ō*, nearly *ū*. It is easy to understand that these two vowel-sounds, though originally different, were confounded in one Coptic vowel-phoneme, Coptic *ū* from Prim. Eg. *ū* being

written in the same way as the *ō*/*ū* from Prim. Eg. *å*, i. e. either by means of ου (= *ū*) or ω.

By way of summary I repeat that, in my view, the Coptic symbols *ō* and *ū* (or their alternatives *ōō* and *ūū*) both represent a long vowel articulated about half-way between cardinal *ō* and *ū*; this vowel might properly be transcribed *ō*/*ū*. The intermediate quality of the vowel in question is attested by the twofold spellings of certain words which are (in one and the same dialect) sometimes written with *ō* and sometimes with *ū*. This sound is the resultant of the fusion of two different Prim. Eg. vowel-phonemes, *å* and *ū*, whose separate existence is proved by the Semitic languages, known to be closely related to Egyptian. It follows that it is generally impossible to determine whether a Coptic word containing *ō*/*ū* (written *ō* or *ū*) is descended from a Prim. Eg. form with *å* or one with *ū*.

III

The Evolution of Prim. Eg. Short *å*

Let us now pass to the next Prim. Eg. vowel, short *å* (corresponding to Semitic *ă*). In the earliest times it was no doubt identical in quality with its long counterpart *å*, that is to say it was an open back vowel pronounced with open lip-rounding. In their later evolution, however, the two sounds diverged. Long *å*, which always occurred in open syllables, was gradually narrowed, short *å*, on the contrary, remained unchanged till very late times, in accordance with the general tendency of short vowels in closed syllables, owing to which originally narrow vowels were widened in such a position. Now *å* had from the outset been a very wide vowel, so that there was no need for it to undergo any further widening. Only in certain special cases, to be described more in detail later on, namely before velar and glottal fricatives, the rounded back vowel *å* was fronted and unrounded (perhaps also widened) into pure *ă*.

Eg. *å* is clearly attested by the cuneiform writings (in transcriptions of Eg. words), both of the fourteenth and thirteenth centuries (the El-ʿAmārna and Boghaz-köj era, being the age of Amenophis III. and IV. and of Ramses II.), and of the

seventh century B. C. (the times of the Assyrian rule over Egypt, under Assarhaddon and Assurbanipal); the existence of this open Eg. *å* is likewise confirmed, in later centuries, by Greek transcriptions. In cuneiform (both the Babylonian of the fourteenth and the Assyrian of the seventh century B. C.) it is transcribed by means of *ă* (cf. the analogous transcription of long *å* by long *ā* in words such as those quoted above), in Greek either by α or by ω, either of which is nothing but an imperfect attempt to render the Eg. open back vowel *å*, as, e. i., in Ἄμασις || Ἄμωσις, or in Νεφερας || Νεφερως. It is easy to see why Eg. *å* was rendered by cuneiform *ă* or Greek α, for the close acoustic resemblance between *å* and *ă* cannot be denied (English *frock* sounds to French ears like *frac*). Not so obvious is the reason why the Greeks, in certain cases, preferred to render Eg. *å* by means of their own ω; as we have seen, the Greek *ō-mega* had, since the second century B. C., become *narrow*, and the Greeks would not be likely to render the *wide* Eg. *å* by means of their narrow *o*; it must, moreover, be borne in mind that most of the Greek transcriptions in question have come down from those very times for which the narrow pronunciation of the Greek *ō-mega* can be proved beyond all doubt. If, therefore, we find, beside Ἄμασις, also Ἄμωσις (and the latter is by far the more frequent spelling), we are compelled to conclude that, in these cases at any rate, ω must have had, in spite of everything that can be said to the contrary, the value of *open o*, resembling Eg. *å*. Is there any possibility of harmonising the contradictory inferences concerning the pronunciation of Greek *ō-mega*? I believe that we ought to assume a twofold manner of uttering that vowel, according to the usage of the educated classes (the literary pronunciation), and that of the illiterate masses. Mayser draws his inferences regarding the phonetic values of the Greek vowel-phonemes from casual spellings and orthographical errors, but these can hardly be due to the lettered, who could spell correctly in accordance with their own literary pronunciation; we must rather suppose that the misspellings in question were due to unlettered individuals, whose orthographical mistakes reflect their vulgarisms of pronunciation. In the latter type of pronunciation, ω does appear to have had in those times the value of *narrow o* (of indeterminate quantity); but with edu-

cated people, who used what may be termed the »classical« pronunciation, the *ō-mega* may well have kept its ancient sound of wide, open *ō* (resembling *å*), while *ŏ-mikron* continued to be pronounced as short narrow *ǒ*. Now the extant transcriptions of Eg. proper names are, in the vast majority of instances, due to lettered scribes who endeavoured to render names containing the peculiar Eg. *å* (open, back, rounded, short) as accurately as possible, transcribing the phoneme sometimes by means of *α*, but sometimes also by means of *ω*, the latter symbol having in their correct literary pronunciation retained its ancient value of wide *o*, i. e. a vowel approximately equivalent to *å*. It is true that, in doing so, they had to ignore quantity; but there was no help for that. The scribes in question seem to have regarded the *quality* of the vowel transcribed as more important for their purpose than its mere *quantity*; their own short *ŏ-mikron*, being narrow, must have seemed quite unsuitable, by reason of its quality, to render the peculiar Eg. *å*.

I again beg leave to support my statements concerning the agelong existence of Eg. *å* in closed syllables by examples quoted from K. Sethe, *Die Vokalisation des Ägyptischen*, p. 168 ff., though my interpretation of the facts again differs from his. Thus, e. g.: 1) Babylonian *ăppa* (in the name *Aman-ăppa*), Greek -ωφι- (in Ἀμεν-ωφι-ς, Φα-ωφι (= Eg. *ỉp-t* 'Karnak' = **'pj-t* = **'ăpj*t* ⇒ **'ăpp*t* (by assimilation)[1]; 2) Babyl. *ḫatpi* (in the name *Aman-ḫatpi* = Eg. *ỉmn-ḥtp*), Greek -ωθη-ς (in the Greek transcription of the same name: Ἀμεν-ωθη-ς), Eg. *ḥtp*, or rather **ḥtpw* = **ḥătp*w* ⇒ **ḥâtp* ⇒ *ḥât*p*[2]; 3) Babyl. *mašša* or *mašši* (in

[1] Cf. the name of the second month, *pn-ỉp-t*, *'he* of Karnak, *der* von K.' ⇒ B. *pă-ŏpi* (read **-ăpp**), S. **pă-ŏpe* ⇒ *pă-ăpe* || *po-ope* (read **-ăpp**), the Πα-ωφι or Φα-ωφι of the Greeks (which reflects the Lower Egyptian, or B., pronunciation). Note the curious fact that in this name (as in others) medial *-n-* was dropped.

[2] A biconsonantal group (here due to loss of the old ending *-*w*) at the end of a word was, in Eg., tolerated only during a certain era. At a later time, such a group came to be considered inadmissible in that position, hence an epenthetic *š*wā* was inserted between two consonants at the word-end, to facilitate their pronunciation. This epenthesis is shown to be late by the fact that the vowel of the preceding syllable remained short,

the names *Aman-mašša, Ḫara-mašši*) = Eg. **măsi*, Greek -μασις or -μωσις (in Ἄμασις || Ἄμωσις and Θουτμωσις)[1]; 4) Babyl. *naptera*, name of the queen of Ramses II., written *nfr-t-ỉrj* in hieroglyphs and containing the feminine **năfrᵉ(t)* 'bona, pulchra' =

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though the syllable was now open: **ḥâtp* became **ḥâtᵉp*, not **ḥâtᵉp*! This case is analogous to the Hebrew *segolata*: **ᶜain* ⇒ *ᶜajᵉn* (with *short a*) or **malk* ⇒ *mälᵃḵ* (with *short ä* in the first syllable).

The Pharaonic name *imn-ḥtp*, or rather *imn- *ḥtp-w*, 'Amon is quiet', i. e. 'content', was evidently pronounced in the El-'Amārna era (fourteenth century B. C.) **ᵓåmᵉn-ḥătpᵉ(w)*, whence the cuneiform transcription *Aman-ḫatpi*; some thousand years later, in Hellenistic times, it was pronounced **ᵓåmᵉn-ḥâtᵉp*, whence the Greek Ἀμεν-ωθη-ς, by omission not only of laryngal *-ḥ*, unpronounceable to the Greeks, but also of final *-p*, which they failed to hear (it being here in a position of very weak stress, at the word-end after *šᵉwā*), and with addition of the Greek ending *-ς*. Cf. the name of the seventh Egyptian month, *pn-imn-ḥtp(w)*, which signifies 'the (month) of (King) Amenophis (I)'. In Hellenistic times, this name seems to have been pronounced in Lower Eg. (later B.) **phᵃ-ᵓåmᵉn-ḥâthᵉp*, which must have sounded to Greek ears like **phåmᵉn(ḥ)âthᵉ(p)*, whence the spelling Φαμενώθ (for *Φαμενώθης, like Ἀμενώθ beside Ἀμενώθης). With this Greek pronunciation and spelling the name was later borrowed back by the Egyptians inhabiting the Delta, appearing in B. in the hellenised form *phamenôth* (with *long o*). In S. it was at first **påmᵉn-ḥâtᵉp* (written *pamᵉnhatᵉp*), which became later, by metathesis, **pânᵉmḥâtᵉp*, whence (by dissimilation) **pârᵉmḥâtᵉp*, written *parᵉmhôtᵉp* or *parᵉmhatᵉp* (M. Chaine, *Eléments de grammaire dialectale Copte*, 1933, p. 223, gives the S. form of this name as *parᵉmhat*).

[1] In Eg., the spelling of these names is always defective: *ỉmn-ms, ḥr-ms, jᶜḥ-ms, ḏḥwtj-ms*, etc. This defective *ms* should no doubt be read **msj-w* and vocalised **măsjᵉw* ⇒ **måsj* ⇒ **măsi*. I regard it as a *participium activi* (imperfective or perfective) of the same type as, e. g., S. *ǧoịs*, A. *ǧaịs* 'master, lord' (from Eg. **ṯâisᵉw*, from the verb *ṯs* = **ṯsj* 'to command', hence literally 'the commanding one, κελεύων', or, better still, 'he who has commanded, κελεύσας'), or as S. *noịḳ*, A. F. *naịḳ* 'fornicator' (literally »μοιχεύων« or rather »μοιχεύσας«). I am, therefore, of opinion that **măsj(ᵉw)* ⇒ **măsi* signifies in these names 'the begetter, τίκτων' or 'he who has begotten, τεκών', so that their literal meaning was: 'Amon (Hōrus, the Moon, Thoth) (is) he who has begotten (him)', or, in Greek: »Ἄμμων / Ὧρος, etc. (ἐστι) ὁ τεκὼν αὐτόν« or »ὁ τοκεὺς αὐτοῦ«.

S. *nofre*, B. *nofri*, A. *nafre*[1]; 5) Assyrian *manti* (in the name *mantimehē* = Eg. *mnṯw-m-ḥ't* 'the god Month is in front', like *'imn-m-ḥ't*, 'Αμενεμμης, 'Amon is in front') = Eg. **mănt'(w)* = Gr. -μῶνθις (in the name of the Upper Egyptian town 'Ερμῶνθις, now Erment)[2]; 6) Assyrian *ḫanša* = Eg. **ḫănš'(w)* (byname or, perhaps, even proper name of the moon-god worshipped at Thebes), in Greek either -χωνσ-ις (in many Eg. names of persons) or *-χωνς ⇒ -χων (in the name of the month Παχών)[3]; 7) the Eg. proper name *z-n-wsr-t*, pronounced **z'n-wăsr't*[4], which the Greeks seem to have corrupted first into *Σεν(*F*)ωσρις, *Σεν(*F*)ωστρις, and finally (by assimilating the medial *-n-* to the two *s*) into Σεσωστρις;; 8) the Eg. feminine name *nt-ỉḳr-t*[5], pronounced **nit-'ăḳr'(t)*,

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[1] As the name *Naptera* occurs only once in cuneiform (in one of the Boghaz-köi texts), we may reasonably suspect that it is, perhaps, not free of error. In fact, I believe that *naptera* ought to be emended into **napret-era*, assuming that the writer has inadvertently omitted the symbol *re* or *ri*. **Napret-* would correspond letter by letter to the Eg. **nåfr't* 'bona, pulchra'; and *-era* would reflect Eg. *irj* (*nfr-t-irj*).

[2] The name of the warlike god *mnṯw* (*mntw*) was evidently pronounced in two ways: **månt'w* or **ment'w*; for the town consecrated to him, *pr-mntw* 'house of (the god) M.', is called in S. and B. either *ermŏn't* (Greek 'Ερμῶνθις) or *ermĕn't* (modern Erment); the inferior spelling *ermōn't*, beside *ermŏn't*, is also found (cf. *pašŏn's* ‖ *pašōn's* in the next note).

[3] In Eg. *pn-ḫnsw* 'the (month) of (the god) Chons'; in Hellenistic times this was pronounced **p'a-ḫănš'w* ⇒ **p'aḫăns*, whence the Greek Παχών (in which the final *-s* is dropped). B. has the same hellenised form *pakhŏn*. But in S. the evolution was normal, according to the Eg. phonetic laws: **p'a-ḫănš'w* ⇒ **p'aḫăns* ⇒ **p'aḫăn's* (cf. note 2, p. 17) ⇒ **p'ašăn's*, written in S. *pašŏn's* or, in an inferior orthography, *pašŏn's* (cf. preceding note). — The passage of *ḫ* into *š* is relatively late, as is suggested, among other things, by the fact that the name of the famous Pharaoh Cheops, pronounced in Old Eg. **ḫeu̯f('w)*, and **ḫeu̯f* in the time of Herodotus (whence that author's Χέοψ for *Χευψ, with the Greek nominative ending -ς added to **ḫeu̯f*), had become **šeu̯f* ⇒ **šūf* by the time of Manetho (whence that author's Σουφ-ις, with the Greek ending -ις, as in 'Απις, 'Οσιρις, 'Αθυρις, 'Αμασις, 'Αμενωφις, etc.).

[4] 'Man of (the goddess) *Wåsret*', i. e. the warlike, lion-headed, bloodthirsty goddess *Sachmet*. The names **wåsr't* and **saḫm't* are synonymous, both meaning 'powerful (woman)'.

[5] 'The goddess Neith (is) magnificent' or 'preeminent'.

and changed into Νιτ-ωκρις by the Greeks; 9) the name *ḥr-m-ḥb*[1], pronounced **ḥår-ᵉm-ḥåb*[2], hellenised by Manetho into **Harmåb-is* ⇒ **Harmåv-is*[3] and written Ἁρμα(*F*)ις, like Ἀμασις = Eg. **(j)ᵉḥ-måsi*; he might just as well have written *Ἁρμω(*F*)ις like Ἀμωσις; 10) the proper name *p'-whr*, signifying *'the dog'*[4] and pronounced **p-ᵉwhår* ⇒ **puhår*, which the Greeks turned into Πσῶρις (with *o* for *u*, as is frequently the case, and *h* omitted between vowels).

It would be easy to multiply these examples, which prove conclusively that the vowel *å* existed in Eg. down to the latest times. We find it attested both in the fourteenth (El-'Amārna) and in the seventh century (the time of the Assyrian domination of Egypt), and, still later, in Greek and Hellenistic times. We have seen that the cuneiform writers (Babylonian and Assyrian) represented this Eg. vowel (*å*) by *ă*, and the Greeks by *α* or ω.

In some cases, however, the cuneiform writers employed a different mode of transcription. Several instances are on record where the Eg. short *å* is rendered by means of long *ū*. The following are cases in point: *pir'u* or *pirū* 'Pharaoh' = Eg. **pᵉrrå(')* ⇐ **pᵉr-'å'* ⇐ **pᵉr-'å'* (by assimilation: *-rᵉ-* ⇒ *-r'-* ⇒ *-rr-*[5]; *jarū* beside *jaru'u* 'Nile' = Eg. **jᵉrrå(')* ⇐ **jᵉr-'å'* ⇐ **jᵉr-'å'*[6]; the

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[1] 'Hōrus is in the festival', i. e. 'in a festive, joyous mood'.

[2] Eg. *ḥb* 'festival' was pronounced **ḥåb*, as is shown by its Coptic equivalent (in S. and B.) *hŏp* 'wedding, wedding feast' (in A. and F. it would be **hăp*; cf. *zp* = **zåp* 'time, occasion' ⇒ S. B. *sŏp*, A. F. *săp*).

[3] For the ending -ις cf. note 3, p. 19 (the end). In Eg., *-b-* would sometimes pass into *-v-*; cf. *sb'* 'star' = **sībᵉ'* ⇒ **sīvᵉ'* ⇒ Coptic *sīψ*, or *sbk* = **sŏ/ūbᵉk* ⇒ **sŏ/ūwᵉk* ⇒ *sūwᵉkh* (in the Lower Eg., or B., pronunciation) ⇒ **sūkh* ⇒ Σοῦχ-ος.

[4] The corresponding feminine name *t'-whr-t* 'the bitch' is also on record; comparison with the dog was by no means offensive to Egyptian feeling.

[5] In the hieroglyphs *pr-ᶜ'*, originally signifying 'great house'; in the Hebrew Bible *parᶜōʰ*, in the Septuagint Φαραώ(ν), in Coptic **pᵉrrŏ*, later *ᵉrrŏ* (S.). The latter change is due to the initial *p-* being mistaken for the article; taking **pᵉrrŏ* to mean **p-ᵉrrŏ* »ὁ βασιλεύς, *the* king«, people thence deduced *ᵉrrŏ* »βασιλεύς, king«.

[6] In the hieroglyphs *ỉtrw-ᶜ'* = **jᵉr-'å'* 'great river', in Coptic *jerŏ* (S. A.), *jarŏ* (B.), *jerå* (F.); these spellings ought, in my opi-

Assyrian transcription *ṣiḫā* ‖ *ṣiḫū*, which renders the Eg. proper name *ḏḏ-ḥr*, pronounced **ḏ̲ᵉ(ḏ)-ḥă(r)* by the contemporary Egyptians and extant in later Greek texts as Τεώς or Ταχώς[1]. These cases of an Egyptian brevity being rendered by a cuneiform length may, I daresay, be explained as due to the Eg. short *å* being stressed and final in those words; a final stressed vowel, though really short, may easily strike the ear of a foreigner as long. The above-quoted instances do not, however, warrant the inference that Eg. *å*, when transcribed *ū* at the word-end, differed in pronunciation from the same phoneme in the medial position, where, as we have seen, it was always transcribed as *a*. Moreover, the last of those instances occurs in two forms, *ṣiḫā* beside *ṣiḫū*, so that *å* could here likewise be rendered by means of *a*, just as in the medial position, with the only difference that long *ā* was written here (for the reason stated above). There is yet another example, where Eg. final *å* appears transcribed exclusively by *ā*, namely the Assyrian *pi-šaptiā*, rendering the Eg. topographical name *pr-spdw-ʿʾ* = **pᵉr-såpḏᵉ(w)-ʿå*[2]. Thus it is seen that the cuneiform writers could

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nion, to be read: **jᵉrrŏ*, **jᵃrrŏ*, **jᵉrrå* (the gemination of the medial consonant being weak, as usually in Coptic).

[1] The former of these forms renders the Eg. **ḏ̲ᵉ-ḥă(r)*, the latter the Eg. **ḏ̲ᵃḥă(r)* (in Eg., *šᵉwā* followed by a laryngal spirant sometimes passed into *ḫāṯēph pathaḥ*). In the former the Greeks omitted, as usually, the laryngal spirant, which they could not pronounce (cf. the above-quoted Pharaonic names *imn-ḥtp* = **ʾåmᵉn-ḥătᵉ(p)* ⇒ Ἀμεν-ωθη-ς, *ḥr-m-ḫb* = **ḥår-ᵉm-ḥăv* ⇒ ʿΑρ-μ-α(*F*)-ις); in the latter form (Ταχώς) they improperly replaced the glottal fricative *ḥ* by the velar *ḫ*, expressing the latter by means of their own χ = *kh* (cf. the Eg. name of the crocodile *mzḥ* ⇒ Coptic *ᵉmsaḥ*, which Herodotus, II, 69, corrupted into χαμψαι, transferring the *ḥ* from the end to the beginning of the word, changing it into *ḫ*, rendered by Greek χ, and inserting a 'euphonic' *p* between *m* and *s*).

[2] This means either 'the great house (of the god) Sapt' or 'the house of the great (god) Sapt' and is certainly connected somehow or other with the well-known town *pr-spdw* = **pᵉr-såpḏᵉw* ⇒ **pᵉssåptᵉ(w)*, long the chief town of the twentieth Lower Egyptian district, known to the Bible as the country of *Gosen*, and later to the Greeks as Ἀραβία. The place of this town, whose ruins lie near the present Arabian hamlet of *Ṣaft el-Ḥenne* (*ṣaft* reflects the Eg. **såpt(ᵉw)*), was later taken by the town of Φά-

transcribe Eg. final *å* in the same way as medial *å* (the difference in quantity does not matter for our purpose), so that we should hardly be justified in ascribing to Eg. short *å* at the word-end a sound differing from that of the same phoneme when medial. If, notwithstandig this, several examples have come down in which Eg. *å* appears transcribed in a way other than the normal, i. e. by means of *ū* instead of *a*, this fact is not due, I take it, to any difference in the manner of articulating the Eg. *å*-phoneme in different positions, but to the circumstance that this very peculiar sound of the Egyptian language would strike the ears of different foreigners in different ways. This, then, is a case perfectly analogous to those noticed above in the Greek transcriptions. Some foreigners, when hearing *å*, would be reminded of their own *a*, hence they (both Greek and cuneiform writers) indicated it by means of their symbol for *a*; others, again, would hear the Eg. *å*, a back vowel with lip-rounding, as a sound approximately equivalent to *o*, and then a Greek would write his ω (with the value of open *o*) — cf. the Greek transcriptions of the last-quoted examples: Τεώς ‖ Ταχώς, Φερῶς (Herod. II, 111) or Φαραώ (*Septuaginta*) — while a cuneiform writer, not possessing in his own writing any symbol for a vowel of the *o*-type (whether open or close), would have to employ his symbol for *ū*. These *variations* in the transcriptions — α ‖ ω with the Greeks, *a*, *ā* ‖ *ū* with the cuneiform writers — are, in my view, strong evidence of a quality in the Eg. vowel-sound thus transcribed halfway intermediate between *a* and *o*, in other words, of the sound-value *å*.

Such a state of things as that which the Assyrian transcriptions allow us to observe in the seventh century B. C., and the Greek transcriptions in several later centuries, lasted down to an age which may be called Coptic in the full sense of the term. Now when the Copts began searching the Greek alphabet for a suitable symbol to express their *å*, they were, at the very outset, faced by the inconvenient fact that the vowel denoted in Greek by the letter alpha was completely unrounded, besides being more palatal than their *å*. Hence arose the same difficulty

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κουσ(σ)α, now *Fakus*, situated some sixteen miles to the northwest, at the entrance to the country of Gosen.

as that experienced by those cuneiform and Greek writers who endeavoured to render in their respective systems of writing Eg. words containing *å*. But it behove the Coptic scribes to find in the Greek alphabet some symbol or symbols that would at least roughly do for their own Eg. *å*. Two ways were open to them: either the Greek *alpha* might be made — *per fas et nefas* — to stand for Coptic *å*, or else one of the Greek *o*-symbols might be chosen. Like the Assyrians and Greeks before them, the Copts did both. The most suitable *o*-symbol would have been one with the phonetic value of short *open o*, if such a one could have been found. The Greek alphabet, indeed, possessed two *o*-symbols: *ŏ-mikron* and *ō-mega*. But, as we have seen, the two sounds corresponding to these letters had in the popular pronunciation been merged in one fairly close *o*. This had enabled the Copts to use the *ō-mega* (beside *ū*) as a letter indicating their excessively narrow *ō/ū*. No sound equivalent to Greek *ŏ-mikron* existed in Coptic. How did the Copts get over the difficulty? Simply by adapting the *ŏ-mikron* to their purpose, giving it a new value, that of short *open o*, and pressing it into their service as a symbol for the Coptic *å*. Such changes in the phonetic value of alphabetic letters are bound to occur whenever an alphabet is transferred from one language to another, for it never happens that the sounds of two languages agree exactly.

In brief, the Copts adopted two ways of expressing their short *å* in Greek lettering. Part of them, nothing loth to ignore the labialisation of *å*, did not scruple to represent that phoneme by means of Greek *alpha*, being evidently of opinion that their own *å* was, after all, more of an *a*- than an *o*-sound. Others, considering that *å* resembled an open *o* rather than a sound of the *a*-type, and being unable to find in the Greek alphabet any other symbol capable of indicating a short *o*, decided in favour of *ŏ-mikron* (the *ō-mega*, as we have seen, was required by the Copts to express their *ō/ū*). They did so without heeding the fact that Greek *ŏ-mikron* had at all times represented a vowel-sound closer than Eg. *å*. The *Coptic ŏ-mikron*, therefore, indicates a short and very open *o*, i. e. *å*.

The assumption that the Coptic *ŏ-mikron* ought to be interpreted as a short *and open* vowel, hence as *å*, is confirmed by the fact that the same words are written, in the same dialect,

sometimes with *ŏ-mikron*, and sometimes with *alpha*, as, e. g., S. *ˈšnŏ* ‖ *ˈšnă* 'thorn (of a palm-leaf)', *ϱŏsˈr* ‖ *ϱăsˈr* 'oar', *sŏrˈm* ‖ *sărˈm* 'yeast', *ğŏtme* ‖ *ğătme* 'heap of corn', *hŏ* ‖ *hă* 'face', *uhŏr* ‖ *uhăr* 'dog', *parˈmhŏtˈp* ‖ *parˈmhătˈp* 'the month Φαμενώθ', etc. etc. Such variations can only be accounted for if we accept the view that the Coptic *ŏ-mikron* represented an *o*-sound which was excessively wide, and consequently practically identical with a labialised back variety of *ă* (= *å*). Hence I do not ascribe any phonetic importance to the variation *o* ‖ *a* in the Coptic texts, but take it to be a mere vacillation of the spelling (like the alternation *ū* ‖ *ō*, discussed above), due to an imperfect attempt at representing the Coptic *å* by means of Greek letters. This variety of spelling naturally became more limited when schools of scribes arose and certain traditions were established, in other words, with the advent of fixed »orthography«.

Different norms of spellings were then adopted in different parts of Egypt. The *ŏ-mikron* predominated in S. and B., the *alpha* in F.; in A. we have *alpha* medially (also before a final consonant), and *ŏ-mikron* finally. It is indeed possible that in some of the dialects the resemblance to *ă* was greater (owing to weaker labialisation), while in others the rounding was more prominent and the vowel-timbre more *o*-like (compare similar divergences in the articulation of English short *o* in words like *pot*, *box* as pronounced in America — where it is quite unrounded — and in the South of England, where it is distinctly rounded). But this is of no great importance as compared with the main fact that *fundamentally* these sounds were identical.

The following examples may serve to illustrate Eg. *å* in closed syllables and its graphical representation in the different dialects: Eg. *sn* 'brother' = **sån* ⩦ S. B. *sŏn*, A. F. *săn*[1]; Eg. *zp* 'time, occasion' = **zåp* ⩦ S. B. *sŏp*[2], A. F. *săp*[3]; Eg. *ţzw* 'lord,

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[1] Eg. **sån* is, of course, descended either from Par. Eg. **săn-u* or from Par. Eg. **sún-u*; its feminine would naturally be **săn-åt-u* or **sún-åt-u* ⩦ **sånˈt* or **sūnˈt*, either of which would later become **sō/ūnˈ(t)*, written *sŏne* (in S. A.), *sŏni* (in B. F.).

[2] Eg. *z* ⩦ Coptic *s*, as *d* ⩦ *t*. For the Eg. sibilants *s* and *z* (formerly transcribed *ś* and *s*) were, in Coptic, confounded in one *s*, just as the Eg. plosives *t* and *d* were confounded in one *t*.

[3] Cf. the plural **zåp(ˈw)*, written (in S.) *sōōp* (with double ω).

master' = *ṯjz-w = *ṯā̆jz-ᵉw ⇒ S. ǧoi̯s, A. ǧai̯s; Eg. *wā̆jn-ᵉw 'light' ⇒ S. u̯oi̯n, B. u̯ōi̯ni[1], A. u̯ai̯ne, F. u̯ai̯n; Eg. ḥf'-w 'snake' = *ḥā̆f'-ᵉw ⇒ *ḥā̆ff(-ᵉw) ⇒ S. B. hŏf, A. hăf; Eg. bt'-w 'loathing' = *bā̆t'-ᵉw ⇒ *bā̆tt-ᵉ(w) ⇒ S. bŏ́te (i. e. *botte)[2], B. bŏ́ti (i. e. *botti), A. băte (i. e. *batte), F. băti (i. e. *batti); Eg. mw 'water', defective spelling for *mjw = *mjw-w = *mā̆jw-ᵉw ⇒ *mā̆ww(-ᵉw) ⇒ S. B. mou̯[3], A. F. mau̯; Eg. ḏw 'mountain', likewise a defective spelling for *ḏjw = *ḏjw-w = *ḏā̆jw-ᵉw ⇒ *ḏā̆ww(-ᵉw) ⇒ S. B. tou̯[4], A. F. tau̯; Eg. ḫrw 'voice' = *ᵉḫrā̊w (i. e. *ᵉḫrā̊u̯) ⇒ S. ᵉhrou̯, B. ᵉḫrōu̯, A. ᵉḫrau̯, F. ᵉhlau̯; Eg. hrw 'day' = *ᵉhrā̆w ⇒ *ᵉh'ā̆w ⇒ *ᵉh-hā̆w ⇒ B. ehŏ́u̯ (= *ᵉhhou̯), S. *ᵉhhŏu̯ shortened to hŏu̯, F. *ᵉhháu̯ shortened to hau̯[5]; Eg. 'ḥ'wtj 'fighter, warrior, brave' = *'ᵉḥ'ā̆wtᵉj ⇒ *'ᵉḥḥā̆wt (ḥ' ⇒ ḥḥ by progressive assimilation) ⇒ *'ᵉḥḥā̆wᵉt (cf. note 2, p. 17) ⇒ S.

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[1] B. u̯ōi̯ni (with ω) should be interpreted as u̯oi̯ni, for the diphthongs, though uniform in the Coptic pronunciation, were spelt variously: their first element is arbitrarily written either with a short vowel-symbol (ei̯, oi̯, eu̯, ou̯) or with a long one (ēi̯, ōi̯, ēu̯, ōu̯). The S. scribes prefer the short vowel-symbols, those of B. evince a preference for the long ones, though there is no lack of exceptions either way.

[2] In the Coptic orthography double consonants are usually written single, which shows that the gemination of consonants must have been weak (cf. the case of the Hebrew glottals pronounced »mit virtueller Schärfung«). It is only occasionally that geminated consonants are written double in Coptic, e. g. S. hᵉbbe (= *hĕbbᵉ) || B. hĕbi (= *hĕbbⁱ) 'plough'.

[3] Written mōu̯ in B. (with ω); cf. what was said in note 1 above on the spelling of the Coptic diphthongs.

[4] Written tōu̯ in B.; cf. notes 1 and 3 above.

[5] In A. we should expect the same form as in F., but it is not extant. Instead of it, we find in A. a form borrowed from the neighbouring S. dialect, viz. hou̯, which appears as hŏ́u̯e (probably pronounced *hŏ́u̯u̯ᵉ) in A. This A. hŏ́u̯e 'day' is therefore what may properly be called a sahidism. The addition of final -e is presumably due to the diphthong ou̯ being altogether unusual in A., especially at the end of a word. For whenever it had, in the latter position, secondarily arisen from earlier -eu̯, it hat become -ŏ. In S. and B., final *-iw (*-iu̯) became *-eu̯ and later -au̯ (through the intermediate stage *-äu̯), but in A. final *-eu̯ (from older *-iu̯) was, by assimilation due to u̯, first transformed into -ou̯, and then simplified into -o. Thus S. and B. mau̯ 'mother', ᵉmmau̯ 'there', nau̯ 'time', nau̯ 'to see' (= F. meu̯. ᵉmmeu̯, neu̯) correspond to A. mo, ᵉmmo, no.

**wăh◡m-u*[1] ⇌ **wåhᵉm* ⇌ S. *u̯ōhᵉm*, B. *u̯ōhem*, A. *u̯ōhme* (⇐ **u̯ōhᵉm* = *u̯ōhm̥*) 'to repeat'; *status pronominalis* (Prim. Eg.) **wăh◡m-ù-f◡*[2] 'his repeating' ⇌ **wåhmᵉf*; it is seen that the vowel *å*, which in the *status absolutus* was and always remained in an open syllable, and therefore had to be lengthened, stood in a closed syllable in the *status pronominalis*, and therefore remained short; this short *å* was unrounded to *ă* under the influence of the following glottal fricative, thus: **wåhmᵉf* ⇌ **wăhmᵉf* ⇌ S. B. F. *u̯ăhmᵉf* (the A. form does not happen to be extant). Our second example is Eg. *šʿd* 'to cut off': *status absolutus* (Prim. Eg.) **šăʿ◡d-u* ⇌ **šåʿᵉd*, contracted into **šåd* ⇌ S. B. F. *šōt* (written *šōōt* in S. and F.), A. *šūt* 'to cut off, slaughter, kill, sacrifice, castrate'; *status pronominalis* (Prim. Eg.) **šăʿ◡d-ù-f◡* 'his cutting off' ⇌ **šåʿdᵉf* ⇌ **šăʿdᵉf*, and then (by regressive assimilation of *-ʿd-* ⇌ *-dd-*): **šăddᵉf* ⇌ S. B. *šătᵉf* (= **šăttᵉf*)[3].

We have thus to some extent entered upon the discussion of the consonants, having to explain a change in the vowel-system due to the neighbourhood of certain consonants (velar or glottal fricatives). To complete the description of Eg. *å*, another change remains to be treated, which is likewise caused by a neighbouring consonant, viz. *'āleph*. It is true that *'āleph*, when im-

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[1] The symbol ◡ denotes any short vowel the exact quality of which we do not know.

[2] It is worthy of mention that the *status pronominalis* of the infinitive is of very ancient standing, going back to a time when the ancient case-endings had not yet been dropped. The infinitive being a verbal noun with a case-ending, the *pronomina suffixa* were appended to it *after* the appropriate case-ending. Here the latter did not, as elsewhere, stand at the absolute word-end, but was followed by the suffixed pronoun; in this category of forms, therefore, the ancient case-endings were not dropped, but remained.

[3] As the vowel preceding the *t* of *šătᵉf* is short, the syllable in which it occurs must have been closed. Hence it follows that this *t* ought to be regarded as a geminate. For if it had really been a single consonant, it would have belonged altogether to the second syllable, leaving the first open; but in that case the vowel of the first syllable would have been long. The gemination of double consonants in Coptic was so feeble that it was generally left unmarked in the spelling, the consonant being written single (cf. note 2, p. 25).

mediately preceded or followed by another consonant, was generally assimilated to that consonant (cf. **ḏå'j'w* ⇒ **ḏåjj'w* 'ship'). But in some instances *'āleph*, at the end of a syllable and preceded by *å*, disappeared (before the following consonant) and caused the lengthening of the preceding *å*. This may be stated in other words by saying that *å* and a following *'āleph* (before consonant) were contracted into long *å*. The same sound-change occurred in the Semitic languages (cf. Prim. Sem.**ra'š-u* ⇒ **râš-u* ⇒ **rōšu* ⇒ Hebrew *rōš* 'head').

The Eg. *å* of this origin (⇐ *å*' before consonant) underwent the same phonological evolution as *å*, the continuation of Prim. Eg. *å*. That is to say that, in its later evolution down to Coptic times, the *å* due to contraction of an originally short *å* with *'āleph* before consonant yielded the same result as originally long *å*, viz. the sound *ō/ū*, written either *ō-mega* or *ū*. Hence the contraction of short *å* with *'āleph* must be supposed to have occurred before the era of the (slow) process of narrowing long vowels in open syllables. This explains why, e. g., Eg. *k'm-w* 'garden' = **kå'm'w* ⇐ **kă'⌣m-ìw-u*, *ḏ'ḏ'* 'head' = **ḏå'ḏ'* ⇐ **ḏă'⌣-ḏ⌣'-u*, *m'ḳ-t* 'ladder' = **må'ḳ't* ⇐ **mă'⌣ḳ-å̀t-u* became **kåm'w*, **ḏåḏ'*, **måḳ't* (the *å*-sound was certainly still there in the era of the El-'Amārna texts, for which we have proved the existence of a *wide*, long *å̂*), and why these three words, having become levelled in their vowel-sounds under the type **nåt'r* ⇐ **nătir-u* 'god' and **wåh'm* ⇐ **wăh⌣m-u* 'to repeat' (where *å* had always stood in an open syllable), went in their later phonological evolution together with the words belonging to that type, thus: **kåm'w* ⇒ **kōm('w)* ⇒ **kō/ūm('w)* ⇒ S. B. *čōm* 'garden'; **ḏåḏ'* ⇒ **ḏōḏ('')* ⇒ **ḏō/ūḏ('')* ⇒ B. *ǧōǧ* 'head'; **måḳ't* ⇒ **mōḳ('t)* ⇒ **mō/ūḳ('t)* ⇒ B. *muk* 'ladder'; just like **nåt'r* ⇒ **nōt'(r)* ⇒ **nō/ūt'(r)* ⇒ S. A. *nūte*, B. F. *nūti* 'god' and **wåh'm* ⇒ **wōh'm* ⇒ **wō/ūh'm* ⇒ S. *u̯ōh'm*, B. *u̯ōhem*, A. *u̯ōhme* unoriginally from **u̯ōh'm*) 'to repeat'.

In considering the evolution of Eg. short *å* in those cases where it was contracted with a following *'āleph*, we have come back to Eg. long *å̂*. This vowel originated, as we have seen, from two sources, being either the continuation of Prim. Eg. *å* in an open syllable or the product of the contraction of short *å* with a following *'āleph*. Its later evolution was uniform. But there was yet another kind of long *å̂*, likewise descended from ancient

short *å*, though differing from the above in its later development down to and including the Coptic age. I therefore propose to denote the former *å* (of twofold origin), which is reflected in Coptic by *ō/ū*, by means of the symbol $å_1$, and the latter (to be discussed presently) by means of the symbol $å_2$. I introduce this distinction here, while treating of short *å*, because $å_2$ is likewise descended from original short *å*, though the conditions under which it arose differ from those of $å_1$.

Assimilation, both pro- and regressive, commonly takes place in Eg. whenever two different consonants meet. Two examples, already quoted, will suffice: **ḥåf'ᵉw* 'snake' ⇌ **ḥåffᵉw* (⇌ S. B. *hŏf*, A. *hăf*) for progressive, **ḏåjwᵉw* 'mountain' ⇌ **ḏåwwᵉw* (⇌ S. B. *tou̯*, A. F. *tau̯*) for regressive assimilation. Two different consonants are thus turned into a geminate. As, however, geminates were feebly articulated in Coptic (cf. note 2, p. 25), a group consisting of a short vowel and a geminated consonant sounded almost like one composed of a long vowel and a single (non-geminated) consonant. In other words, a group consisting of a short vowel and a long (geminated) consonant was the quantitative equivalent of a group inversely composed of a long vowel and a short (single) consonant. This may be expressed by the equation *-atta-* = *-āta-*, according to the well-known rhythmical law that a syllable long by position is equal, as regards quantity, to a syllable long by nature. This law found frequent application in Coptic, and apparently no less in Eg., at any rate in the age immediately preceding the Coptic era. In latest Egyptian and Coptic, therefore, any short vowel followed by a long (geminated) consonant could at any time be replaced by the corresponding group of long vowel + short (single) consonant (the well-known linguistic phenomenon called »compensatory lengthening« — »Ersatzdehnung«)[1]. And in the Coptic spelling gemination is more often than not left unmarked, being as it were hidden or potential — »redoublement virtuel«, »virtuelle Schärfung«.

These quantitative shifts are entirely optional and do not really affect the respective forms either phonetically or rhyth-

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[1] Cf. such Greek instances as *τὸνς *ἵππονς ⇌ *τὸ̄ς *ἵππōς, written τοὺς ἵππους, or *τιθέντς, *τιθέντῐα ⇌ *τιθε̄ς, *τιθε̄σα, written τιθείς, τιθεῖσα.

mically. Though seen under different angles of vision, the picture remains essentially the same. In point of time, these optional shifts of quantity and rhythm are later than the beginnings of the narrowing of open *å* in the direction of *ō* (⇒ *ō/ū*), though earlier than the unrounding of short *å* to pure *ă* in closed syllables before a velar or glottal fricative. This may be inferred from the fact that, on the one hand, $å_2$ (i. e. long *å* originating from short *å* by quantitative compensation) remained apart from $å_1$, while, on the other, in cases of the latter description *å*, open and short, is lengthened to $å_2$, open and long, not to *ā*, which would have resulted if compensatory lengthening had been preceded by the process of unrounding *å* to pure *ă*.

This $å_2$, then, arose from *å* by lengthening at a time when normal $å_1$ had already undergone narrowing (or, in other words, had ceased to exist, its place being taken by *ō/ū*). At that time the sound-law according to which wide vowels in open syllables were narrowed was no longer operative, its power having as it were exhausted itself when all those vowels that had once been long and wide (including $å_1$) had become narrow (and $å_1$ had passed into *ō* or even *ō/ū*). Hence $å_2$ could no longer be subject to the law of narrowing. And it really appears in Coptic as a fully open vowel. The Copts invented an ingenious system of writing this long wide $å_2$, by using the same letter as for short *å*, but doubling it so as to indicate the length of the vowel. The A. and F. dialects, where *alpha* had established itself as the orthographical symbol of *å*, represent $å_2$ by means of *ăă*; where, however, *ŏ-mikron* was written for *å*, that letter was doubled to represent $å_2$ (*ō-mega* not being available, since it had been given the value of the exceedingly close vowel *ō/ū*).

The following examples illustrate lengthening of (originally short) *å* by quantitative compensation:

1. The Eg. noun *ḥm-t* 'woman' ⇒ S. *hīme* (cf. the compound S. A. *ˁs-hīme*, B. F. *ˁs-hīmi*). Its singular is derived from a biliteral root: **ḥím-åt-u* ⇒ **ḥīmˁ(t)*[1]; but its plural contains the triliteral root *ḥjm* (*ḥm* expanded by the insertion of medial *j*),

[1] Just like *ir-t* 'eye' = **jír-åt-u* ⇒ *jīrˁ(t)*, **jīrˁ(t)*, extant in Greek (Plutarch) as Ἶρι: or *ˀs-t* 'Isis' = **ˀís-åt-u* ⇒ **ˀīsˁt*, the Ἶσι-ς of the Greeks (B. *ēsi*, S. *ēse*); or *km-t* 'Egypt' = **kím-åt-u* ⇒ **kīmˁt* ⇒ S. A. *kēme*, F. *kēmi*, B. *khēmi*, etc.

thus: *ḥ̬∪j̊ām-åw-ȧ̊t-u ⇒ *ḥjåmwᵉt ⇒ *ᵉḥjåmwᵉt ⇒ *ᵉḥjåmmᵉt (-mw- ⇒ -mm- by assimilation) ⇒ *ᵉḥjåmmᵉ, written, of course, ᵉḥjŏme (S.), ᵉḥjŏmi (B.), ᵉḥjăme (A.), the geminate being, as usually, represented by a single letter. That it *is* a geminate, is proved by the short *ŏ* or *ă* in the first syllable. For if the *-m-* was really a single consonant, the first syllable would be open, and its vowel long. Beside the forms A. *ᵉḥjăme*, S. *ᵉḥjŏme* (both = *ᵉḥjåmmᵉ), the same dialects also have forms with shifted quantity, i. e. with long vowel and short (single) consonant: *ᵉḥjåmmᵉ(t) ⇒ *ᵉḥjå₂mᵉ(t), written *ᵉḥjŏŏme* (S.) and *ᵉḥjăăme* (A.). B. has no such alternative form, it being a noteworthy fact that, in this dialect, the variations of quantity under consideration either did not occur at all, or were not indicated in the spelling. In the latter case, B. *ᵉḥjŏmi* would be ambiguous, for it might represent both *ᵉḥjåmmᵉ and *ᵉḥjå₂mᵉ.

2) Eg. *jtr-w* 'river' was in all probability pronounced *jåtrᵉw (⇐ *jăt∪r-ɨw-u). The group *-tr-* became *-rr-* by assimilation, hence *jåtrᵉ(w) ⇒ *jårrᵉ(w), and this was by the law of quantitative compensation transformed into *jå₂rᵉw ⇒ *jå₂rᵉ(ᵉw), written in S. *jŏŏr*, in B. *jŏr* (= *jår(rᵉw) or *jå₂rᵉ(ᵉw)), in F. *jăăr*. In A. we should also expect *jăăr*, or perhaps *jăăre* (for the A. scribes are fond of keeping final *-e*, and even of adding it where it is not warranted etymologically). But these forms do not occur in A., which has, instead, the irregular spelling *jō(ō)re* (with single or double *ō-mega*), the origin of which I am unable to explain.

3) Eg. *ḥpr* 'to become' = *ḥå₁pᵉr ⇒ *ḥōpᵉ(r) ⇒ *ḥō/ūpᵉ(r), written *ḥōpe* (A.), *šōpe* (S. F.), *šōpi* (B. F.)[1]. Its pseudoparticiple (Eg. grammar) or qualitative (Coptic grammar) was *ḥpr-w = *ḥåprᵉw. Here the group *-pr-* became *-pp-* by assimilation (there may have been an intermediate stage *-pʾ*; the change of *r* to ʾ is not uncommon, and the assimilation of *ʾāleph* with any preceding consonant is quite the rule), thus: *ḥåprᵉw ⇒ *ḥåppᵉw. Then we again have quantitative compensation: *ḥåppᵉw ⇒ *ḥå₂pᵉw ⇒ *ḥå₂p(ᵉw) ⇒ *šå₂p(ᵉw), whence S. *šŏŏp* (B. *šŏp*), F. *šăăp*. In A. we should expect *ḥăăp* (or *ḥăăpe*), instead of which we find the spelling *ḥŏŏp*, which is, in my opinion, due to S. influence. The difference between the treatment of *-pr-* in this and that of *-tr-* in the

[1] F. *šōpe* is no doubt a borrowing from S.; the genuine F. form is *šōpi*.

preceding example is remarkable. Such differences in the treatment of analogous consonant-groups are not infrequent in Coptic; the causes of these divergences are unknown.

4) Eg. *j'ḥ* 'moon', properly **j'ḥ-w* = **jå'ḥ'w* ⇒ **jåḥḥ'w* (*-'ḥ-* ⇒ *-ḥḥ-* by regressive assimilation) ⇒ **jå$_2$ḥ'w* (by quantitative compensation) ⇒ **jå$_2$ḥ('w)* ⇒ S. *ǒǒh* (with unoriginal and probably late loss of initial *j-*), B. *jǒh* (i. e. either **jåḥ(ḥ'w)* or **jå$_2$ḥ*), F. *ǎǎh* (likewise with loss of initial *j-*).

This example affords an excellent opportunity of studying the relative chronology of two phonological processes, viz. 1⁰ quantitative compensation; 2⁰ the passing of short *å* into pure *ǎ* before a velar or glottal fricative. If, in the same closed syllable before a velar or glottal fricative, the latter process had taken place at an earlier date than the former, the forms *ǒǒh* (S.) and *jǒh* (B.) would be impossible, **jåḥḥ'w* would then have become **jǎḥḥ'w*, and later **jāḥ'w*, which the S. scribes could not have written *ǒǒh*, but only **ǎǎh*. If we have *ǒǒh*, this proves that, in **jåḥḥ'w*, the *å* was first lengthened to *å$_2$* with simultaneous simplification of the geminate, i. e. **jåḥḥ'w* ⇒ **jå$_2$ḥ'w*. A long vowel would not be affected by a following glottal (or velar) fricative, because the latter would no longer form part of the same syllable, but belong to the next, the preceding syllable being open, and not, as a short syllable would be, closed by the respective fricative consonant. This is why *å$_2$* could not change; it was written *ǒǒ* (S.) or *ǎǎ* (F.). In A., the word for 'moon' does not happen to be extant.

5) Several other words of like structure should, in my opinion, be interpreted in the same way as the Coptic name of the 'moon', e. g. Eg. *ḳ'ḥ* 'corner, angle' = **ḳ'ḥ-w* = **ḳå'ḥ'w* ⇒ **ḳåḥḥ'w* ⇒ **ḳå$_2$ḥ'w* ⇒ **ḳå$_2$ḥ('w)*, written in S. *kǒǒh* (B. *kǒh*) 'corner, top'; Eg. *wḥ'-t* 'scorpion' = **wåḥ'-t* ⇒ **wåḥḥ't* ⇒ **wå$_2$ḥ't* ⇒ **wå$_2$ḥ'(t)*, written in S. *ṷǒǒhe*, but also *ṷǒhe*, which no doubt represents **wåḥḥ'(t)*, the relation of the two forms being the same as that of S. *'hjǒǒme* ‖ *'hjǒme* 'women'. We should, to be sure, expect **wåḥḥ'(t)* to have become **wǎḥḥ'(t)* (*å* ⇒ *ǎ* before glottal fricative), which would be written **ṷǎhe* in S. The *å* of *ṷǒhe* seems to be due to the analogy of the *å$_2$* in *ṷǒǒhe*.

6) Eg. *k'š-j* 'Nubian, Ethiopian', pronounced **'k'åš'j* ⇒

*ᵉkkåsᵉj[1] ⇒ *ᵉkkōšᵉj ⇒ *ᵉččōš(ᵉj), written in S. *ěčṓš* (B. *ěthṓš* had been an earlier borrowing from S. *ᵉkkṓš*); plur. *ᵉk'åšᵉw ⇒ *ᵉkkåššᵉw (by double assimilation: *-k'-* ⇒ *-kk-* and *-šj-* ⇒ *-šš-*) ⇒ *ᵉkkå$_2$šw (by quantitative compensation) ⇒ *ᵉččå$_2$šᵉw ⇒ *ᵉččå$_2$š(ᵉw), written in S. *ěčṏṏš* (also extant in its older form *ěkṏṏš*), and in A. *ěčăăšě* = *ᵉččå$_2$šᵉ(w) with preservation of the final *šᵉwā*, which had been dropped in S. The development was similar in the femin. sing.: *ᵉk'åšjᵉt 'Nubian, Ethiopian woman' ⇒ *ᵉkkåššᵉ(t) ⇒ *ᵉččăššᵉ(t) (extant in S. as *ěčṓše*; B. *ěthṓši* is borrowed from S.) ⇒ *ᵉččå$_2$šᵉ(t) (by quantitative compensation) = S. *ěčṏṏšě*.

7) Eg. *w'ḏ-t* 'vegetable' = **wå'ḏᵉt* ⇒ **wåḏḏᵉt* (*-'ḏ-* ⇒ *-ḏḏ-* by regressive assimilation) ⇒ **wåddᵉ(t)* ⇒ **wåttᵉ(t)* (⇒ S. *ṷṓte*, B. *ṷṓti*), beside **wå$_2$tᵉ(t) (by quantitative compensation), written *ṷṏṏte* (S.), *ṷăăti* (F.). It is worthy of notice that, though several examples have been quoted showing how *'āleph*, when followed by another consonant, is contracted with preceding short *å* to *å$_1$* (⇒ *ō/ū*, written in Coptic either ω or ου), there are other words, such as the above, where *'āleph* in such a position is n o t contracted with preceding *å* to *å$_1$*, but assimilated to the following consonant (by regressive assimilation). For had it been contracted with *å* also in **wå'ḏᵉt*, that is to say had **wå'ḏᵉt* become **wå$_1$ḏᵉ(t), we should get Coptic forms written **ṷōte* (S.), **ṷōti* (B. F.); but as the real spellings are S. *ṷṓte* ‖ *ṷṏṏte*, B. *ṷṓti*, F. *ṷăăti*, A. *ṷăti*, we must suppose them to be derived from **wåttᵉ(t)*, which can only be explained in the above manner. W h y the treatment of syllable-closing *'āleph* should thus vary in different sets of words, I am unable to guess. We are here faced by one of those hard problems of Egyptian phonology to which we shall have to recur when speaking of the arbitrary ways of assimilation (regressive or progressive) in Eg. consonant-groups.

8) Eg. *wgw-t* (later written *wgj-t*) '(lower) jaw' = **wågwᵉt* (**wågjᵉt*) ⇒ **wåggᵉ(t)* (by progressive assimilation) ⇒ B. *ṷṓği*, F. *ṷăği*, S. *ṷṓče* ‖ *ṷṏṏče*. The last form proves that, in S., **wåg-gᵉ(t)* ⇒ **wåččᵉ(t)* could become **wå$_2$čᵉ(t)* by quantitative compensation.

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[1] The group *-k'-* ⇒ *-kk-* by an assimilation analogous to that which occurred, e. g., in *ḳ'b-t* 'female breast' = **ḳ'ībᵉt* ⇒ **ḳḳībᵉ(t) ⇒ S. *ěkībe* or its abbreviation *kībe*, A. *kībe*, B. *kīfe*.

9) Eg. *mnʿ-t* 'wet-nurse' = **månʿᵉt* ⇒ **månʾᵉt* ⇒ **månnᵉt* (by progr. ass.) ⇒ **må₂nᵉ(t)*, written in S. *mŏŏne* (B., as usually, has only *mŏni*), in A. *măăne*, in F. *măăni*.

The above examples will suffice. They afford clear evidence of the working of the principle of quantitative compensation in Eg. and its Coptic reflexes. It is also seen that this sound-law is not of an obligatory, but an optional nature, some words having alternative forms in different dialects, both with short vowel followed by geminated consonant, and with lengthened vowel and simplified geminate (= single consonant). Such variations are most common in S., cf. *ᵉhjŏme* || *ᵉhjŏŏme* 'women' (A. *ᵉhjăme* || *ᵉhjăăme*), *u̯ŏhe* || *u̯ŏŏhe* 'scorpion', *ečŏše* || *ečŏŏše* 'Nubian woman', *u̯ŏte* || *u̯ŏŏte* 'vegetable', *u̯ŏče* || *u̯ŏŏče* 'jaw', etc.

We have come to the end of our description of the short Eg. vowel *å*. In closed syllables, as we have seen, it was preserved down to Coptic times as a wide sound with retracted tongue-position and with or without lip-rounding, written *ŏ-mikron* in S. B., or *alpha* in A. F.; in A., however, the *ŏ-mikron* is used to represent the phoneme in a final position. In one special position, the *ă* of closed syllables is represented by *a* in all the Coptic dialects, viz. when followed by a velar or glottal fricative (*ḫ*, *h*, *ḥ*, ʿ). A geminate following *å* was often simplified. It would then cease to close the preceding syllable and altogether pass over to the following (as its initial sound), the limit between the syllables would be shifted backwards, and the short *å*, now in open syllable, lengthened by quantitative compensation. I designate an *å̊* of this origin by the symbol *å̊₂*; it remained open down to Coptic times, and was written either double *ŏ-mikron* (S.) or double *alpha* (A. F.). This *å̊₂* must not be confounded with *å̊₁*, which may have two sources, being either the continuation of Prim. Eg. *å̊*, or the result of the contraction of short *å* with a following *ʾāleph* before consonant — a process found also in the Semitic languages. After the era of the El-ʿAmārna texts, *å₁* is gradually narrowed, so that it finally reaches the tongue and lip position of a sound intermediate between *ū* and *ō*, which is written in Coptic either *ō-mega* or *ū*. With this sound was entirely confounded Eg. *ū*, the two vowels being merged in one phoneme.

IV

The Evolution of Prim. Eg. *ŭ*

The fourth Prim. Eg. vowel was short *ŭ*. This vowel shared the general tendency of the short Eg. vowels in closed syllables towards widening, if originally narrow. Hence Prim. Eg. *ŭ* was widened first to *ŏ*, and then to *å*, being eventually merged in one phoneme with the Eg. short, wide, rounded *å*, which remained unchanged down to the Coptic era. Owing to the total lack of written evidence, we are unable to say when this widening of *ŭ* (⇒ *ŏ* ⇒ *å*) occurred. In Coptic times, at any rate, no phonetic difference whatever is traceable between original *ŭ* and original *å*. Both were pronounced and written alike (*ŏ-mikron* in S. B., *alpha* in A. F.). Consequently we are never able to determine, on the strength of the Coptic evidence alone, whether a word written in Coptic with *ŏ* (S. B.) or *ă* (A. F.) originally contained Prim. Eg. *å* or *ŭ*. Those words which I have attempted to reconstruct in the foregoing are quoted with original *å*. They might just as well have had original *ŭ* in Prim. Eg. The only criteria that enable us to pronounce with any degree of probability upon the original source of this Coptic phoneme are afforded by comparison with the corresponding Semitic forms. Thus, e. g., the discovery of the fact that P. Eg. *å* (= P. Semitic *ă*) was confounded and completely identified with P. Eg. *ŭ* (= P. Semitic *ŭ*) furnishes the clue to the hitherto unexplained vocalisation of the Coptic qualitatives both of intransitive and passive verbs — a peculiarity which Sethe (*Die Vokalisation des Aegyptischen*, p. 174, note 2) calls »a phenomenon... which has hitherto always been most enigmatic, namely that the Coptic qualitative, the fossilised remnant of the ancient pseudo-participle (the Semitic perfect) shows the same vocalisation when denoting the existence of a property or an intransitive state, as when signifying a passive state as a form of a transitive verb. *hŏtᶜb*, 'be killed', does not differ in its vocalisation from *mŏɣᶜt* 'be dead', nor *mŏse*, 'be born', from *ŏbe*, 'thirst'. Now, if we compare the respective Arabic forms, we find that the passive forms correspond to type *ḳŭtila*, the intransitive ones to type *ḳătila* or *ḳătula*. This might lead us to think that in the one case Coptic *ŏ* was

derived from old *ŭ*, and in the other from old *ă«* (according to my interpretation, a correction becomes necessary at this point, and we have to say: »from old **ă̆* ⇐ **ă«*), »and that what had happened in Coptic was nothing but the confusion of two entirely different forms due to sound-changes, as so often in language. This explanation, however, encounters the objection... that, in Akhmimic, the above-mentioned formations with *ŏ* (*hŏtᵉb*, *mŏse*) have everywhere *ă* instead of *ŏ*, also in those cases where the latter would have arisen from earlier *ŭ«*. Once the sound-law discovered by the present writer is accepted, no difficulty of this kind will be experienced any longer. On the contrary, we shall arrive at the conviction that those very Akhmimic qualitatives with *ă* in place of primitive (pre-Egyptian) *ŭ* furnish the strongest possible confirmation of the law. Granting that Eg. confounded pre-Egyptian *ă* (corresponding to P. Semitic *ă*) and pre-Egyptian *ŭ* (corresponding to P. Semitic *ŭ*) in the one phoneme *ă̆* (written *ŏ* in S. B., and *ă* in A. F.), we shall have no difficulty in comprehending such parallels as, e. g.:

1⁰ S. *šŏbe* (= **šŏbbᵉ*), B. *šŏbi* (= **šŏbbᵉ*) = F. *šăbi* (= **šăbbᵉ*) 'to be different from'; the A. form is not extant (we should expect **šăbbe*);

2⁰ *pŏtᵉs* = F. *pătᵉs* (the B. and A. forms are not extant; we should expect B. **pŏtᵉs*, A. **pătᵉs*) 'to be split' (from the transitive infinitive S. *pōtᵉs* 'to split').

In the first case I start from the Prim. Eg. form **šă̆bij-ă̊w(a)* (⇒ **šă̆bjᵉw* ⇒ *šă̊bbᵉw* (by progr. ass.) ⇒ **šă̊bbᵉ(w)*), which I identify with the P. Sem. *perfectum intransitivum* of type **ḳáti/ul-a*, deducing the latter from **ḳáti/ul-ā*, and this again from **ḳáti/ul-àwa*; in the second case I presuppose the Prim. Eg. form **pútis-ă̊w(ă̊)* ⇒ **pă̊tsᵉw* ⇒ **pă̊ts(ᵉw)* ⇒ **pă̊ts* ⇒ **pă̊tᵉs*, and recognise in it the P. Sem. *perfectum passivi* of type **ḳútil-a* ⇐ **ḳútil-ā* ⇐ **ḳútil-àwa*.

V

The Evolution of Prim. Eg. *ī*

The next Prim. Eg. vowel was close, long *ī*, which naturally occurred only in open syllables. It remained unchanged down to Coptic times, for being by nature a narrow vowel it

could not be narrowed any further (widening was out of the question on account of the general tendency of the Eg. long vowels to become narrower). In Babylonian and Assyrian transcriptions of Eg. words *ē* is sometimes found beside *ī* in the place of Eg. *ī*; but no inference as to the pronunciation of the latter can be drawn from these varying transcriptions, for cuneiform notoriously makes hardly any difference between the symbols for *ǐ* and *ĕ*, but employs in a haphazard manner sometimes the one and sometimes the other in the same word, so that any cuneiform *ǐ* may also mean *ĕ*, and, vice versâ, any cuneiform *ĕ* may also mean *ǐ*. The best method of transcribing cuneiform *ǐ* and *ĕ* would therefore be to employ the combined notation *i/e* or. *ī/ē*.

Owing to this ambiguity of the cuneiform system of writing, one cannot tell for certain whether the cuneiform transcriptions with *ī/ē* reflect *ī* or *ē* in the respective Eg. words of the period. Yet, notwithstanding this ambiguity, I am inclined, nay determined, to regard the former as more probable than the latter, or, in other words, to believe that cuneiform *ī/ē* reflects contemporary Eg. *ī* rather than Eg. *ē*. Thus I interpret the following transcriptions: 1) Babyl. *ria*, *ri'a*, *rija* = Eg. **rīᶜ(w)*, 'sun' and 'sun-god'[1]; 2) Babyl. *pawī/ēra* or *piwī/ēri* = Eg. **pᵉwírᵉ(w)*, 'great' (Eg. *p'-wr*, or rather *p'-wrw*, 'ὁ μέγας, der Grosse, the great one'); 3) Ass. *paturī/ēsi* = Eg. **p'-t'-rsj*, 'Southern country', where *rsj* was then in all probability pronounced **rīsᵉ(j)*; 4) Ass. *pušī/ēru* = Eg. *pr-wsjrj* = **pᵉ(r)-usírᵉ(j)*, '(the town of) Βουσιρις', literally 'house (i. e. temple) of Osiris'; 5) Ass. *ḫatḫ(a)rī/ēba* or *ḫatḫ(i)rī/ēbi* = Eg. *ḥ't-t'-ḥrj-jb*, '(town of) 'Αθρῖβις', lit. 'house (i. e. temple or, perhaps, capital) of the country of the middle', where *jb*, 'heart', properly **jbw*, was then probably pronounced **'íbᵉ(w)*; 6) Ass. *pinṭī/ēṭi* or *binṭī/ēṭi*, '(the town of) Μενδης' = Eg. *pr-b'-nb-ḏd-t*, 'house of the (holy) ram, the lord of (the town of) Dīdᵉ(t)', then (and later) abridged in pronunciation to **pᵉndídᵉ(t)*, **bᵉndídᵉ(t)*[2];

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[1] In such Pharaonic names as *Nib-mu'a-rī'a* (*Nim-mūa-rīia*, *Mim-mū-rīja*) = *nb-m'ᶜ(t)-rᶜ*; *Waš-mu'a-rī'a* = *ws(r)-m'ᶜ(t)-rᶜ*; *Šatep-na-rī'a* = *stp-n(j)-rᶜ*; *Ri'a-maše-ša* = *rᶜ-ms-sw*, etc.

[2] Cf., on the one hand, the name of the town Μένδης (gen. Μένδητ-ος), on the other, the personal name 'Εσβενδητις, instead of **Νεσβενδητις = *nj-sw-b'-nb-ḏd-t* 'belonging to the (holy) ram, lord of (the town of) Dídᵉ(t)'.

7) Ass. *ḫarsijaēšu* = Eg. *ḥr-s'-'s-t*, 'Horus, son of Isis', which was, I suppose, in spite of this Assyrian spelling pronounced **ḥ^{a}rsi'ī́s^{e}(t)*; 8) also the neo-Babyl. *ēsi'*, 'Isis', which appears several times in cuneiform transcriptions of Eg. proper names [1], should, in my opinion, be taken to reflect the Eg. pronunciation **'ī́s^{e}(t)*, not **'ḗs^{e}(t)*.

Hence, in spite of such transcriptions as the last two (quoted under nrs. 7 and 8 above), I am convinced that P. Eg. *ī* lasted unchanged through the El-ʿAmārna (XIV. cent.) and neo-Assyrian and neo-Babylonian eras (VII. and VI. cent.), down to the Coptic age. Now when the Copts began to search the Greek alphabet (such as it was at the time of its adoption into Coptic) for a suitable symbol to express their long *ī*, they found quite a number of symbols ready to hand, since in the Greek pronunciation of that age both η (which had represented long, open *ē* in the classical era) and ει (= long close *ē* in the classical era) had become practically identified with the long vowel denoted by ι. Let us refer, once more, to E. Mayser, who says (*l. c.*, p. 80): »From a number of cases, there results for ε, η, ει a common sound on the line *e* — *i*, a sound which is very nearly ι. In consequence of this peculiarity, orthographical exchanges of the three symbols are occasionally met with, not only amongst themselves, but above all with iota. One step more in this direction, and we shall have reached itacism, i. e. the phonetic fusion of η, ι, ει, (υ, οι). The first beginnings of this phenomenon are noticeable, in Egypt, in the second century B. C.« It is, of course, impossible to state exactly when the process of ει, η, ι being merged in one *ī* reached its conclusion; this seems to have taken place not later than the second half of the II., or the beginning of the III. century of our era (cf. Mayser, l. c., p. 86). But there can be no doubt whatever that, when the Copts adapted the Greek alphabet to their orthographical needs, the phonetic values of the three symbols η, ει, ι were, to Coptic ears, practically identical [2]. This fact is, to mind, convincingly proved

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[1] Cf. H. Ranke, *Keilschriftliches Material zur altägyptischen Vokalisation* (Abhandlungen der Preussischen Akademie, 1910), p. 39 ff.

[2] This is also the opinion of W. Till, who says in his *Achmimisch-Koptische Grammatik* (1928), § 5b: »As the treatment

by the circumstance that very many Coptic words occur (even in one and the same dialect) in twofold spellings, once with *iota*, or with *ĕ-psilon* + *iota* (= *ī*), then again with *ēta*, e. g. S. *hʿršīre* || *hʿršēre* 'boy, lad'; S. *sībe* || *sēbe* 'cedar-gum, pitch'; S. *šībe* || *šēbe* 'mildew'; S. *hašít* || *hašét* 'falcon'; S. *šīre*, B. *šīri* 'little one' = S. A. *šēre*, B. *šēri*, F. *šēli* 'child, boy, son' (really the same word); B. *ʿskhīm* || *ʿskhēm* 'grey hair'; S. B. F. A_2 *ʿsmē* A. *ʿsmī* (with *iota* or *ĕpsilon*+*iota*) 'voice'; S. *ʿčrē* || A. *ʿčrī* 'to dig'; S. B. F. *ušē* || A. *uḫī* 'night'; A. *tībe* || S. *tēēbe* 'finger'; A. *mīīše* || S. *mēēše* 'crowd, multitude'; A. *ꜣīībe* || S. F. *ꜣēēb* 'priest'. Many more examples might be quoted; all of them prove that the Copts did not make any phonetic difference between *ēta* and *iota* (and *ē-psilon* + *iota*), and that the sound denoted by all these symbols could be none other than *ī*.

In brief, the Copts took over all three symbols denoting long *ī* in the Greek spelling of their time. At first they seem to have employed them quite at random, but in the course of time, when a certain orthography had been evolved in each of the different regions, or dialects, of Egypt, one way of spelling was adopted in every particular word to the exclusion of the others. At the Coptic schools pupils were taught to write certain words with *iota* only, others with *ēta* only, others again with *ē-psilon* + *iota*, in some cases even double *ēta* was used (in A. also *īeį* = *īī*) to mark the length of vowels more emphatically. Thus the mutual relation of the spellings with *ī*, *ē* (or *ēē*), *eį* is quite analogous to that of the spellings with *ō* (or *ōō*) and *ū* (or *ūū*): in both cases no phonetic differences are implied by the variety of the graphical representation. In either group of spellings we are dealing with one and the same sound throughout (*ō*/*ū* in the latter case, *ī* in the former). As soon as this fact is clearly understood, many difficulties disappear, such as the problem of the mutual relation of the forms Ἰσις and -ησις (in Ἁρσιησις = *ḥr-s*'-'*s-t* 'Horus, son of Isis'); or of the Greek transcriptions Ἴσις, Ἀθριβις, Ἔπειφ or Ἔπιφ (the name of the eleventh month) and the Coptic spellings *ēsi* (B.) || *ēse* (S.), *athrēbi* (B.) ||

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of the Greek loan-words shows, itacism had already become prevalent at the time when they were introduced into Coptic. It seems that the vowels and groups of vowels were, at that time, pronounced much as in Modern Greek«.

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VI

The Evolution of Prim. Eg. *ĭ*

Equally simple was the evolution of Prim. Eg. *ĭ* (in closed accented syllables): widened, first to *ĕ*, then to *ă*, it eventually became a sort of palatal *ă* (approaching *ā*). In two of the Coptic dialects, viz. A. and F., *ă* predominates and is written *ĕ-psilon* (in the Coptic spelling this letter denotes short *open* *ĕ*, hence a sound resembling *ă*, just as *ŏ-mikron* is used to express short open *ŏ*, resembling *å*). In S. and B., on the other hand, the palatal *ă* predominates, being written *alpha*. We have here another instance of the general tendency of originally short and narrow vowels in closed syllable to be widened; we have noticed the same tendency in the evolution of. Prim. Eg. *ŭ*. It is, of course,

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[1] This spelling really denotes the pronunciation **mᵉrrī́t*, as is proved by the corresponding forms of the other dialects: A. *mᵉrrī́t* (also written *mᵉrreịt*), F. *mellī́t* (beside *mĕlī́t*), B. *menrī́t* (⇐ **merrī́t*, or rather **mᵉrrī́t*, by dissimilation).

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[3] **šᵉštī́t* ⇐ **sᵉštī́t* (by assimilation) ⇐ *sᵉḫtī́t(ᶜj)* = Eg. *sḫtj*, i. e. **sḫt-t-ᶜj*; cf. the verb *sḫt* 'to weave' ⇒ S. *sōhe*, B. *sōḫi*.

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This is the phonological process known as Philippi's Law ...w philology[1]. The resemblance reaches farther than ...irst sight appear, for the same doubleness of evolution ...lso found in Hebrew: P. Sem. **ĭ* in closed accented ... in Hebrew either (**ĕ* ⇒) *ă̈* or *ă*. Thus we have, ...**bíntu* 'daughter' ⇒ **bántu* ⇒ **báttu* ⇒ Hebrew ...*íntu* 'truth' ⇒ *'*amā́ntu* ⇒ *'*amā́ttu* Hebrew ...*tatus constructus* used, as sometimes hap- ...xtant *status absolutus*, which would ... suffixal pronouns of the 2nd and ...*ŭ̄*, **-kínnă̄* and **-humŭ̄*, **-hínnă̄* ...oming in Hebrew *-kā́m*, *-kā́n*, ... the plural[2]). The Hebrew ... the Arabic *modus ener-* ...fixes of the personal ... **-ā́n-hū*, **-ā́n-hā*), ... **-an* (= Arabic ...in these He- ...done, from ... form **-in*.

...*rische Grammatik* ...*s*, Bd. I, Halle 1922, ... *Grundriss der verglei-* ...*achen*, Bd. I, Berlin 1908,

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ferent vowels: 1° *å* (a *back* vowel with open lip-rounding ≡ English *a* in *swan*); 2° *ă* (a *front* vowel tending towards *ĕ*, ≡ English *a* in *wax*) ⇐ Prim. Eg. *ĭ*.

The following examples contain the Coptic reflexes of Prim. Eg. *ĭ* in closed accented syllables: Eg. *ns* 'tongue', written thus for **ls*[1] ≡ *lĭs* ⇒ A. F. *lĕs*, S. B. *lăs*; late Eg. *br* 'eye' ≡ **bl* ≡ **bĭl* ⇒ A. F. *bĕl*, S. B. *băl*; Eg. *rd* 'foot' ⇒ A. *rĕt=*, F. *lĕt=*, S. B. *răt=*[2]; Eg. **p'd*, later *pd* 'leg, knee' ⇒ A. F. *pĕt*, S. *păt*, B. *phăt*[3]; Eg. *sd* 'tail' ⇒ A. and Old Coptic *sĕt*, S. B. *săt*; Eg. *rn* 'name' ⇒ A. *rĕn*, F. *lĕn*, S. B. *răn*; Eg. *zḫ* 'blow' ⇒ F. **sĕš* ⇒ *šĕš*, S. *săš*, B. *šăš*; Eg. *sf* or *msf* 'yesterday' ⇒ A. *sĕf*, F. **nsĕf*, B. *săf* or **nsăf*, S. **nsăf*; Eg. *ḳ'ḥ* 'soil' ⇒ F. *kĕ́hi*, S. A. *kăh*, B. *kā́hi*[4]; Eg. *ḳ'ḥ* 'arm' ⇒ B. *kăh* S. *kĕh* for **kăh*[5]; Eg. *hj* 'husband' ⇒ A. F. *heị*, S. B. *haị*; Eg. *n'j* 'these' ⇒ A. F. *neị*, S. B. *naị*; Eg. *n-k* 'to thee', *n-f* 'to him' ⇒ A. *nek*, F. *nĕk* (improper spelling instead of **nĕk*), A. *nĕf*, F. *nĕf* (≡ **nĕf*), S. B. *năk*, *năf*; Eg. *nw* 'time' ⇒ F. A₂ *neụ*, S. B. *naụ*; Eg. *nw* 'to see' ⇒ F. A₂ *neụ*, S. B. *naụ*; Eg. *mw-t* 'mother', vocalised **mĭ́wwᵉt* ⇒ **mĕ́wwᵉt* ⇒ **mā́wwᵉt*, hence

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The parent form was, I believe, **pu'ĭd-u*; its evolution ...e: **p'ĭd* ⇒ **ppĭd* ⇒ **pĭd*, **pĕd*, **păd*. ...interpret Eg. *ḳ'ḥ* as *ḳ'ḥ-w* and vocalise **ḳĭ'ḥᵉw* ⇒ **ḳíḥḥᵉw*. For F., I start from **ḳéḥḥᵉ(w)*, and for B. fro... ...*káḥḥᵉw*. Hence F. *kĕ́hi* (≡ **kĕhhᵉ*), B. *kā́hi* (≡ **kăhhᵉ*). S. ...from **kā́he* (≡ **kā́hhᵉ*), A. *kah* is a borrowin... ...ar A. form would be **kĕ́hĕ* (≡ **kĕhhᵉ*) or *... ...ndary change seems to have occurred ... ...his word is known only in the comp... ...*h* 'elbow', as it were 'bolt (or ... ...*kᵉlle* ≡ **kéllᵉ*, B. *kal* ‖ *keli*... I suppose that in the ...ed, in B. by regress... The Eg. spell... **ḳí'ḥᵉw* ≡ ...g no...

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impossible to determine the time at which this widening of original *ĭ* to *å* occurred, any more than in the case of Prim. Eg. *ŭ* ⩦ *ŏ* ⩦ *å*.

This is the phonological process known as Philippi's Law in Hebrew philology[1]. The resemblance reaches farther than would at first sight appear, for the same doubleness of evolution as in Eg. is also found in Hebrew: P. Sem. **ĭ* in closed accented syllable becomes in Hebrew either (**ĕ* ⩦) *å* or *ă*. Thus we have, on the one hand, **bíntu* 'daughter' ⩦ **bántu* ⩦ **báttu* ⩦ Hebrew *băṯ*, on the other *ʾ*amíntu* 'truth' ⩦ *ʾ*amântu* ⩦ *ʾ*amâttu* Hebrew *ʾmåṯ* (this is really the *status constructus* used, as sometimes happens, instead of the non-extant *status absolutus*, which would be *ʾ*āmåṯ*). This is why the suffixal pronouns of the 2nd and 3rd p. pl., from P. Sem. **-kumŭ*, **-kínnă* and **-humŭ*, **-hínnă* (⩤ earlier **-šínnă*), ended by becoming in Hebrew *-kåm*, *-kån*, and *-håm*, *-hån* (appended to nouns in the plural[2]). The Hebrew forms of the imperfect corresponding to the Arabic *modus energicus* (II) end in combination with the suffixes of the personal pronouns in *-ånnī*, *-åkkā*, *-ånnū*, *-ånnā*, (from **-ån-hū*, **-ån-hā*), etc., whose *-än-* is not easily deduceable from **-an* (= Arabic *-an*). Hence it is my belief that, in order to explain these Hebrew forms, we ought to start, not, as is usually done, from **-an*, but from its variant, the special Prim. Hebrew form **-in*.

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[1] Cf. H. Bauer und F. Leander, *Historische Grammatik der Hebräischen Sprache des Alten Testamentes*, Bd. I, Halle 1922, p. 194 (§ 14, z), or C. Brockelmann, *Grundriss der vergleichenden Grammatik der Semitischen Sprachen*, Bd. I, Berlin 1908, p. 147 (§ 52, q).

[2] The evolution of these forms seems to have been the following: the P. Sem. forms of the masc. **-kumŭ* and **-humŭ* were unstressed, for the stress never fell upon their short *u*, but always upon the preceding syllable; in other words, they were enclitics, and therefore weaker than the forms of the fem. **-kínnă* and **-hínnă*, which always bore the stress upon their closed (and consequently long) penult. This disparity caused the weaker masculines to be reshaped on the model of the stronger feminines, and that in both pairs (2nd and 3rd p.), thus giving rise, in pre-Hebrew, to the forms **-kímmŭ*, **-kínnă* and **-hímmŭ*, **-hínnă*, changed in Hebrew, by Philippi's Law, to **-kåmmŭ*, **-kånnă*, and **-håmmŭ*, **-hånnă*, and later to **-kåm*, **-kån* and **-håm*, **-hån*.

The evolution would then be simpler and more certain: **-ín-nī*, **-ín-kā* ⩵ **-én-nī*, **-én-kā* ⩵ **-ắn-nī*, **-ắn-kā* ⩵ *-ắnnī*, *-ắkkā*, etc.

In my opinion, Philippi's Law was operative in Eg. as well as in Hebrew. In both languages it worked in a twofold manner (apparently at random): P. Eg. and P. Sem. short *ĭ* in closed accented syllables appears in Hebrew either as *ă̆* or as *ă*, in Coptic either as *ĕ* (= *ă̆*) or as *ă*. This, at any rate, is the state of affairs as reflected by the spellings. At bottom, we are dealing all the time with the *ă̆*-phoneme of either language, which sometimes inclined more towards the *ĕ*-type, at other times again more towards the *ă*-type.

We have seen that in the two central dialects of Coptic, A. and F., the predominating letter is *ĕ*, while in the other two dialects, S. and B., it is *ă*. In both cases, the respective spelling only *predominates*, without being exclusively used. For *ă* occurs sporadically also in A. and F., and *ĕ* is by no means infrequent in S. and B. In the latter dialects, *ĕ* (from **ĭ*) appears regularly before syllable-closing nasals (*m*, *n*) and liquids (*r*, *l*), as well as before *b* (which, in Coptic, often represents a fricative sound some kind of bilabial *v*), especially when the following consonant is geminated. The geminates are written: in F. *-err-*, *-ell-*, etc.; in S. and A. *-ʿrr-*, *-ʿll-*, etc. (with *stressed* ʿ!), and in B. *-er-*, *-el-*, etc. (single consonant preceded by *short ĕ*, with hidden gemination, analogous to the »virtuelle Schärfung« of Hebrew glottals).

In all four dialects the first elements of the diphthongs *eı̯* and *aı̯* are so much alike that these diphthongs interchange with the greatest ease. The alternation *eı̯* ‖ *aı̯* (in the same word) is very common indeed, especially finally. The diphthong *aı̯* seems to have been pronounced *ăı̯*, thus approaching *eı̯*. Both of these, *eı̯* as well as *aı̯* (= *ăı̯*), are easily monophthongised to *ā*. In this they resemble the diphthong *αι* of the Hellenistic Greek spoken in Egypt, which became *ā* as early as B. C. 150[1].

In writing their *ă̆* ~ *ă* from Prim. Eg. *ĭ*, the Copts used the *ĕ-psilon* as an equivalent for their own *ă̆*, just as they had chosen *ŏ-mikron* to denote their *ă*. In those dialects where Coptic *ă̆* had undergone a further widening to *ă* (S. B.), it was written *alpha*. It must be noted that Coptic *alpha* represents two dif-

[1] Cf. E. Mayser, *l. c.*, p. 107.

ferent vowels: 1⁰ *å* (a *back* vowel with open lip-rounding = English *a* in *swan*); 2⁰ *ă* (a *front* vowel tending towards *ĕ*, = English *a* in *wax*) ⇐ Prim. Eg. *ĭ*.

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[1] The Eg. hieroglyphs did not contain any symbol for *l*. The missing symbol was replaced either by *r* or by *n*, or by both combined (*nr*).

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[3] The parent form was, I believe, **pu'ĭd-u*; its evolution would be: ***p'ĭd* ⇒ ***ppĭd* ⇒ ***pĭd* ⇒ **pĭd*, **pĕd*, **păd*.

[4] I interpret Eg. *ḳ'ḥ* as *ḳ'ḥ-w* and vocalise **ḳĭ'ḥ'w* ⇒ **ḳĭḥḥ'w*, **ḳéḥḥ'w*, **ḳáḥḥ'w*. For F., I start from **ḳéḥḥ'(w)*, and for B. from **ḳaḥḥ'(w)*. Hence F. *kĕ̀hi* (= **kĕ̀hh'*), B. *kâhi* (= **kăhh'*). S. *kaḥ* is shortened from **kâhe* (= **kâhh'*), A. *kaḥ* is a borrowing from S. The regular A. form would be **kĕ̀hĕ* (= **kĕ̀hh'*) or **kĕ̀ḥ*.

[5] A secondary change seems to have occurred here in S.: **kăḥ* ⇒ *kĕḥ*. This word is known only in the compound S. *kelen-keh*, B. *kalan-kah* 'elbow', as it were 'bolt (or 'lock') of the arm' (cf. Eg. *ḳr-t*, S. *k'lle* = **kéll'*, B. *kal* ‖ *keli* = **kell'*), i. e. its 'angles' or 'wrist'. I suppose that in the original **kelen-kah* the vowels were levelled, in B. by regressive, and in S. by progressive assimilation. The Eg. spelling *ḳ'ḥ* 'arm' I conceive as **ḳ'ḥ-w* and vocalise **ḳĭ'ḥ'w* ⇒ **ḳĭḥḥ'w*, etc. (like *ḳ'ḥ* 'soil', for which see the preceding note).

F. *meu̯*, S. B. *mau̯*; Eg. *ḏḏf-t* 'vermin' = **ḏ̆ḏf^{e}t*, etc., ⇒ A. *ǧ̆ětfe*, F. *ǧ̆ětfi*, S. *ǧ̆ătfe* or *ǧ̆ătbe*, B. *čătfi* or *čitfi*; Eg. *dḥn-t* 'forehead' ⇒ S. A. *tĕ̆hne*, B. *tĕ̆hni* [1]; Eg. **wrš-t* 'face' ⇒ B. *u̯ĕ̆rši*, S. *u̯^{e}rše* (= **u̯ĕ̆rše*); Eg. *sntj* (masc.) 'ground, foundations' ⇒ B. *sĕ̆nti*, S. A. *s^{e}nte* (= **sĕ̆nte*, fem., as if from **snt-t*); Eg. *ḳr-t* 'bar, bolt, lock' = **ḳrr-t* = **ḳll-t* ⇒ F. *kēlli* (improper spelling for **kĕ̆lli*), B. *kĕ̆li* (= **kĕ̆lli*) ‖ *kăl* (⇐ **kall(^{e}t)*), S. *k^{e}lle* (= **kĕ̆lle*), A. *k^{e}l* (= **kĕ̆l* ⇐ **kell(^{e}t)*); Eg. *sḏ.t* 'flame, fire' = **sḏḏ.t* = **sḏḏ^{e}t*, etc., ⇒ A. *sĕte* (= **sĕtte*) ‖ *sēte* (⇐ **sĕtt^{e}t*, cf. p. 47), B. *săti* (= **sătti*); Eg. *rš̆w-t* 'to rejoice' = *rišw^{e}t* ⇒ **riš̆š^{e}t* (progr. ass.), etc., ⇒ A. *rĕše* (= **rĕšše*), F. *lĕši* (= **lĕšši*), S. *răše* (= **răšše*), B. *răši* (= **răšši*); Eg. *rsw-t* 'dream' = **risw^{e}t* ⇒ **rĕsw^{e}t* ⇒ **răsw^{e}t* (without assim.) ⇒ A_2 *rĕsu̯e*, A. *rĕsŭ* (⇐ **rĕsu̯*), B. *răsu̯i*, S. *răsu* (⇐ **răsu̯*); Eg. *mtw-t* 'poison' ⇒ **mĭtw^{e}t* ⇒ **mĕ̆tw^{e}t* ⇒ **măttw^{e}t* (without assim.) ⇒ S. *mătŭ* (⇐ **mătu̯*), B. *măthu̯i*; Eg. *fnt* 'worm' = **fnṯ-w* = **fint^{e}w* ⇒ **fĕnt^{e}w* ⇒ **fĕnt* ⇒ B. *fĕn^{e}t*, S. A. *f^{e}n^{e}t* (= **fĕn^{e}t*; in S. also *b^{e}n^{e}t* = **bĕn^{e}t*); Eg. *dnḥ* 'wing' = **dnḥ-w* = **dĭnḥ^{e}w*, etc., ⇒ B. *tĕn^{e}h* (also written inaccurately *tēn^{e}h*), S. A. *t^{e}n^{e}h* (= **tĕn^{e}h*); Eg. *ḫms* 'ear (of corn)' = **hms-w* = **ḫĭms^{e}w*, etc., ⇒ B. *ḫĕ̆m^{e}s*, S. *h^{e}m^{e}s* (= **hĕ̆m^{e}s*); Eg. *zwn-w*, later *zjn-w* 'physician' = **siḭn^{e}w*, etc., ⇒ B. *sĕḭni* (also written *sēḭni*), S. *săḭn* (which should probably be read **săḭ^{e}n* [2]; similarly B. *mēḭni*, F. *mēḭn* (written *mēḭni*, *mēḭn*), A. *mĕ̆ḭne*, S. *măḭn* 'sign, omen, miracle' and B. *lĕḭni* (written *lēḭni*), S. *lĕḭn* or *lăḭn* 'steel'); Eg. *ḫft-j* 'foe, adversary' = **ḫĭft^{e}j*, etc., ⇒ A. **ḫĕ̆ft^{e}j* ⇒ **ḫĕ̆ft* ⇒ *ḫĕ̆f^{e}t*, S. B. **šăft^{e}j* ⇒ **šaft* ⇒ *šăf^{e}t* 'atheist'; Eg. *rḫt-j* 'washer' = **riḫt^{e}j*, etc., ⇒ S. *răḥ^{e}t*, B. *răḥ^{e}t*, F. *lĕḥ^{e}t*; S. B. F. *bĕ̆lle* (written S. *b^{e}lle*, B. *bĕ̆lle*, F. *bĕ̆llē*) 'blind'; S. A. *b^{e}rre* (= **bĕ̆rre*), B. *bĕ̆ri* (= **bĕ̆rri*) 'new'; and similarly S. A. *b^{e}nne*, B. *bĕ̆ni* 'date'; S. *k^{e}nne*, B. *kĕ̆ni* 'to be fat'; S. *s^{e}mme*, B. *sĕ̆mi*, F. *sēmmi* (= **sĕ̆mmi*) 'to grumble'; S. *h^{e}rre*, B. *hĕ̆ri* 'to soothe'; S. *h^{e}bbe*, B. *hĕ̆bi* 'plough'; S. *h^{e}mme*, B. *hĕ̆mi* 'helm, rudder'; A. *rĕste*, F. *lĕsti*, S. *răste*, B. *răsti* 'tomorrow'; A.

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[1] Instead of the expected **táhne* (S.), **táhni* (B.). The cause of this irregularity is unknown.

[2] The correspondence of B. *seḭni*: S. *saḭn* is due to the similarity of the diphthongs *eḭ* and *aḭ*.

měkʿh, S. *mákʿh* 'neck'; F. *emkĕh*, S. B. A. and Old Coptic *ʿmkáh* 'to worry'[1]; S. B. F. *enĕh* 'eternity'[2], etc. etc.

In certain cases, however, the development of Prim. Eg. *ĭ* was different from that outlined above. This deviation occurred, sometimes, when *ĭ* was followed by *'āleph* + consonant. We have seen that preconsonantal *'āleph* was often contracted with preceding *å* to long *ā*; in the same way it could, instead of being assimilated to the following consonant, be contracted with preceding *ĭ* to long *ī*, which would then remain unaltered down to the Coptic era. Here belong, in my opinion, such words as Eg. *b'b'* 'cave, hole' (the hieroglyphs also have the alternative spelling *b'b'w*, where *-w* seems to be the nominal suffix **-iw* || **-uw*) = *bĭ'bʿ* ⇒ **bībʿ* ⇒ **bīb(ʿ)*, extant in S. and B. as *bēb*; or Eg. *b'kj* 'pay(ment)'[3] = **bĭ'kʿj* ⇒ **bīkʿj* ⇒ **bīkʿ(j)*, extant in S. as *bēke*; but we also find S. A. *bĕke*, B. *bĕkhe*, which must be interpreted as **bekkʿ*, **bĕkhʿ* (instead of expected **bĕkhᵗ*), and this can be deduced from earlier **bekkʿ(j)* ⇐ **bĭkkʿ(j)* ⇐ **bĭ'kʿj*. As the last example shows, preconsonantal *'āleph* may either be assimilated to the following consonant or contracted with preceding *ĭ* to long *ī*, and this is as optional after *ĭ* as after *å*.

While speaking of the sound-change *ĭ* ⇌ *ă*, attention has to be drawn to a development parallel to the one noticed on p. 32. Just as Eg. *å* could be lengthened to $å_2$ by quantitative compensation, Eg. *ă*~*ă* (⇐ old *ĭ*) could be lengthened to *ā*~*ā*, if a following geminate was simplified. These long sounds *ā*~*ā*, arising in the way described from short *ă*~*ă* (⇐ *ĭ*), are written with double *è-psilon* or double *alpha* (having the phonetic value of *palatal ă*), just as $å_2$, derived from *å* + *'āleph*, is written with

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[1] A. *ʿmkáh* is a borrowing from S.; we should expect **ʿmkĕh*, as in F.

[2] In S. and B. we should expect **enáh*. The extant forms should be read **ʿnnĕh*, **ʿnnáh*, the phonetic evolution being as follows: Eg. *nḥḥ* 'eternity' = **n⌣ḥĭḥ-u* ⇌ **ʿnḥĭḥ* ⇒ **ʿnníh* (by assimilation) ⇌ **ʿnnĕh*, **ʿnnáh*.

[3] This is the form quoted by W. Spiegelberg in his *Koptisches Handwörterbuch* (1921), p. 15. Erman-Grapow, *Aegyptisches Handwörterbuch* (1921), p. 46, give the word (with the same meaning) as *b'k-w*, regarding it as the plural of *b'k* 'work'.

double *ŏ-mikron* or double *alpha* (having the phonetic value of *labiovelar å*). The substitution of *ā̆*∼*ā* + single consonant for short *ā̆*∼*ă* + geminate is again an optional process; alternations are, therefore, sometimes encountered in Coptic texts.

The above will be illustrated by the following examples:

1) Eg. *sḏ-t* (quoted already on p. 45) 'flame, fire', which probably stands for **sḏḏ-t*, vocalised **síḏḏᵉt* (⇐ Prim. Eg. **síḏ‿ḏ-å̀t-u*) ⇒ **sĕḏḏᵉt* ⇒ **sĕddᵉ(t)* ⇒ **sĕttᵉ(t)* ⇒ **sättᵉ(t)*, extant in A. as *sĕte* (with hidden gemination, as usually); but **sättᵉ(t)* might also be changed by quantitative compensation to **sā̆tᵉ(t)*, extant, again in A., as *sĕĕte*.

2) The older Coptic forms from which the B. feminines *nakhi* 'pain' and *naǧhi* 'tooth' are derived appear to have undergone the following changes in S.: first ⇒ **nakkᵉ*, **naǧǧᵉ* (by progr. ass.), then ⇒ **nākᵉ*, **nāǧᵉ* (by quant. compens.), written *năăke*, *năăǧe*.

3) The *verba tertiae infirmae*, like *zpj* 'to remain' or *nbj* 'to swim', form feminine infinitives, like **zĭpjᵉt*, **nĭbjᵉt*, which become **zĭppᵉt*, **nĭbbᵉt* (by progr. ass.), and then **zĕppᵉ(t)*, **nĕbbᵉ(t)* ⇒ **zā̆ppᵉ(t)*, **nā̆bbᵉ(t)* (by widening); now if quantitative compensation occurred in the last forms, **zā̆ppᵉ(t)* nad **nā̆bbᵉ(t)* would become **zā̆pᵉ(t)*, **nā̆bᵉ(t)*. The first of these evolutionary stages is seen in B. *sĕpi* and *nĕbi*, as well as in A. *sĕpe* (all three with hidden gemination), the second in S. *sĕĕpe*, *nĕĕbe*.

But we also find alternative forms in the various dialects: beside S. *nĕĕbe* there are also *nēbe* (with *η*) and even *nēēbe* (with double *η*), beside B. *nĕbi*, *sĕpi* also *nēbi*, *sēpi*; also F. *sēēpi*. The Coptic *ēta* having the phonetic value *ī*, we must interpret S. *nēbe*, *nēēbe*, B. *nēbi*, *sēpi*, F. *nēēbe* to mean respectively: **nībᵉ* (S.). **nībⁱ*, **sīpⁱ* (B.), **nībⁱ* (F.).

The appearance of long *ī* in these Coptic forms, where Prim. Eg. had *short ĭ* in closed syllable, seems surprising. It must be assumed that quantitative compensation may have taken place, not only at that stage of the evolution of the language when old *ĭ* had already become *ā̆*∼*ă*, but already at the earlier stage when short *ĭ* still existed as such. Hence, e. g., the Eg. pl. 'heavens', which I suppose to be derived from **píj-åw-å̀t-u* (the sing. will be treated later) ⇒ **pĭjwᵉt* ⇒ **pĭwwᵉt* (by regr. ass.), was changed by quantitative compensation to **pīwᵉt* at

a time when short *ĭ* had not yet become *ĕ*; this is the best possible explanation of the Coptic plural forms: S. A. *pēu̯e*, F. *pēu̯i*, B. *phēu̯i*, which have to be read **pīu̯ᵉ*, **pīu̯ⁱ*, **phīu̯ⁱ* respectively, and are derived from **pīwᵉ(t)*. But if lengthening by quantitative compensation could affect already Eg. *ĭ*, then the infinitives **zĭppᵉt*, **nĭbbᵉt* may well have become, by quant. compens., **zīpᵉ(t)*, **nībᵉ(t)*, written in S. *nē(ē)be*, in B. *nēbi*, *sēpi*, in F. *sēēpi*.

The evolution of these two infinitives, then, appears to have been as follows: **zĭpjᵉt*, **nĭbjᵉt* ⇒ **zĭppᵉt*, **nĭbbᵉt*; thereafter we have two lines of development: 1⁰ **zĭppᵉt*, **nĭbbᵉt* ⇒ **zīpᵉ(t)*, **nībᵉ(t)* (extant in S. *nē(ē)be*, B. *nēbi*, *sēpi*, F. *sēēpi*); 2⁰ **zĭppᵉt*, **nĭbbᵉt* ⇒ **zĕppᵉ(t)*, **nĕbbᵉ(t)* (extant in B. *sĕpi*, *nĕbi*, A. *sĕpe*); the last forms underwent a further change by quant. compens. in S., thus: **zĕppᵉ(t)*, **nĕbbᵉ(t)* ⇒ **zäppᵉ(t)*, **näbbᵉ(t)* ⇒ **zāpᵉ(t)*, **nābᵉ(t)*, extant as *sĕĕpe*, *nĕĕbe*.

4) Eg. *mtr-t* 'south', pronounced **mĭtrᵉt* ⇒ **mĭrrᵉt* (regr. ass.) ⇒ **mĕrrᵉt* ⇒ **märrᵉ(t)* (extant in B. as *mĕri*) ⇒ **mārᵉ(t)* (quant. compens.), extant in S. and A. as *mĕĕre*. The group *-tr-* had here the same fate as in **jåtrᵉw* 'river'.

5) Eg. *šrj-t* 'girl, daughter' = *šĭrjᵉt* ⇒ **šĭrrᵉt* (by progr. ass.) ⇒ **šĕrrᵉt* ⇒ **šärrᵉ(t)* (extant in B. as *šĕri*, with hidden gemination) ⇒ **šārᵉ(t)* (by quant. compens.) ⇒ S. *šĕĕre*. Quantitative compensation could likewise take place already in **šĭrrᵉ(t)* ⇒ **šīrᵉ(t)*, as is attested by F. *šē(ē)li*.

As appears from the above, the principle of quantitative compensation, by which a short vowel followed by a geminate could (optionally) be lengthened with simultaneous simplification of the geminate, was operative in Eg. during a very long period, affecting ancient *ĭ* (as we saw in the last three examples) as well as its descendant, *å* ~ *ă*. The same principle could work both ways, that is to say it could also affect forms originally containing a long vowel (*å*₁, *ī*) in open syllable. Just as a short vowel (*å*, *ĭ*, *ă*~*ă*) could be lengthened (to *å*₂, *ī*, *ā*~*ā*) with, and owing to, simultaneous simplification of the following geminate, a long vowel (*å*₁, *ī*), standing in an open syllable, could be shortened by the closing of the syllable, effected with, and owing to, simultaneous and automatic doubling of the following single consonant.

The long vowel affected by the latter kind of quantitative compensation is mostly *ī*. The *ĭ* arising from this source followed the same evolution as earlier Prim. Eg. *ĭ*, i. e. became first *ĕ*, then *ä̆*~*ă*. I quote only one example here, reserving the others for the last chapter, where I shall treat of the Eg. diphthongs. This example is the pl. of the Eg. noun 'day', written *hrw* in the sing., which must have had two forms in Prim. Eg.: **h◡rū́w-u* beside **h◡rī́w-u*. The former became **hrŭw* (by shortening of the stressed vowel caused by its standing in closed syllable after the loss of the inflectional ending) ⇒ **hrŏw* ⇒ **hråw* ⇒ **ᵉhråw* ⇒ **ᵉhhåw* (by progr. ass.) = **ᵉhhåu̯*, written *ehou̯* (B.), *hou̯* (S. F.), *hau̯* (F.), *hau̯e* (A., with unoriginal -ᵉ)[1]. The other form (**h◡rī́w-u*) is preserved only in the plural, which must therefore be reconstructed, for Prim. Eg., as **h◡rī́w-åw-u*; this form would undergo the following evolution: **h◡rī́w-åw-u* ⇒ **hrīwᵉw* ⇒ **ᵉhrīwᵉw* ⇒ **ᵉhrĭwwᵉw* (by quant. compens.) ⇒ **ᵉhrĕwwᵉw* ⇒ **ᵉhräu̯u̯ᵉu̯*, shortened in A. to *ᵉhreu̯*. It is difficult to account for the fact that the group *-hr-* underwent progressive assimilation in the singular and remained unchanged in the plural; the change may have depended on the quality of the following vowel (*å* in the singular, *ä* in the plural).

We have now described the evolution of the last two vowels of Prim. Eg.: long *ī* and short *ĭ*. The former is preserved without change during the whole history of the language down to Coptic times, and written in the Coptic alphabet either *ī*, or *ei̯* = *ī*, or *ē*. There are a few words in which it was, as we saw in the last-quoted example, shortened to *ĭ* by quantitative compensation, and thereafter followed the evolution of Prim. Eg. *ĭ*. This *ĭ*, being a narrow vowel and occurring only in closed syllables, undergoes, from a certain period onwards, an ever-growing widening to *ĕ*, and then to *ä̆*, which easily interchanges (in the Coptic period) with palatal *ă*. The last stage, therefore, of the evolution of Prim. Eg. *ĭ* appears in Coptic as *ä̆* ~ *ă*, written *ă* in S. and B., and *ĕ* in A. and F. Before *b*, *m*, *n*, *r*, *l* (exceptionally before other consonants), *ĕ* is written also in S. and B. I am inclined to ascribe these variations to mere orthographical caprice

[1] The relation of B. *ehou̯* to the *hou̯*, *hau̯(e)* of the other dialects is the same as that of S. *ekībe* to *kībe* (cf. p. 34, note 1).

rather than to any actual difference of pronunciation, a very wide *ă* being nearly the same thing as a palatal *ă*. — In certain cases, as we have seen, Prim. Eg. *ɪ* is contracted with following *'āleph* before consonant to *ī*, elsewhere, again, original *ɪ* is lengthened in accordance with the principle of quantitative compensation; this lengthening occurs at two different stages of the evolution of Prim. Eg. *ɪ*: 1⁰ when it was still sounded *ɪ*; 2⁰ when it had already become *ă* ~ *ă* (lengthened to *ā* ~ *ā* (palatal), written in Coptic ɛɛ or αα).

The last-named phonetic phenomena, namely the assimilation of various biconsonantal groups to geminates, which could then be (optionally) simplified with compensatory lengthening of the preceding vowel, as well as the converse process, belong, strictly speaking, to the theory of the consonants. But as their operation affects the vowel-system, we had to give some account of these peculiarities in the foregoing, when describing the evolution of the Eg. vowels.

VII

The Simplification of Geminates after *šʷwā*

Having once entered the border-land between the respective spheres of vowels and consonants, I will take advantage of the occasion and treat a further phenomenon, likewise connected with the gemination of consonants, namely their simplification under accentual conditions differing from those described in the foregoing. The simplification that we have treated so far affects only geminates following stressed vowels. But a geminate may just as well p r e c e d e the stressed syllable. In this case it is itself preceded by an unstressed vowel, i. e. *šʷwā*. Now a geminate in this position is simplified[1] without any (visible) quantitative compensation, which is easily understood if we reflect that the vowel of an unstressed syllable (= *šʷwā*), even if temporarily lengthened, would soon be reshortened by the operation

[1] Sometimes a geminated consonant was n o t simplified after *šʷwā*, especially geminated *-r-* or *-l-*. Hence we find spellings like S. *ʿrrŏ* 'king' (cf. p. 27, note 1), A. *mʿrrít*, F. *mellít* (= **mʿllít*) 'favourite' (cf. p. 41, note 1).

of the same law of reduction affecting unstressed vowels by which it had first been reduced to *š'wa*. Thus the geminate is in this case merely abridged to the corresponding single consonant, and this behaves thereafter as if it had always (i. e. since the P. Eg. period) been single. This, therefore, is our second law of geminates, concerning their simplification after *š'wā*. In order to prove it, I again adduce a few examples, hoping that they will carry conviction. Thus, e. g.:

1) To S. *r'mjē* (= **r'mjī*), A. *r'mjī* 'tear' B. corresponds with *ermé* (= **'rmī*). This strange correspondence can, in my opinion, be explained only by assuming that there was a time when the form **r'mjī* existed also in B., but that there it became first **r'mmī* (by progr. ass.)[1], and then **r'mī* (by simplific. of geminate). The last form was further changed to **rmī*, i. e. **ɣmī* = **'rmī*, written in B. *ermē* (with η).

2) Eg. *šnw* 'wood' became in A. and S. *šēn* (= **šīn*), in B., however, *šēn* or *'ššēn* (= **šīn*, **'ššīn*). Taking the last form to be the more primitive and assuming that Eg. *šnw* is an inaccurate spelling instead of **š'n-w*, I derive it from Prim. Eg. **šᵕ'i̯n-iw-u*[2] ⇒ **š'īn'w* ⇒ **'š'īn'w* ⇒ **'ššīn'w* (by progr. ass.) ⇒ **'ššīn('w)*, written in B. *'ššēn*. The relation **'ššīn('w)* to the other form **šīn('w)* in A., S., and B. is parallel to the alternations *ekībe* || *kībe* and *ehoụ* || *hoụ*. At some later period this word was erroneously analysed, i. e. it was interpreted as being derived from **šīn'w*[3], as if its root was **šnw* (as it was inexactly written in the hieroglyphs). From this noun, believed to be derived from a root **šnw*, was formed the adjective **šinw'j* 'wood-like', and thence the feminine **š'nwīj't*, which, substantivised, took in the course of time the meaning 'wood-like', i. e. 'field overgrown with trees'[4], hence 'orchard'. The further evolution of the sub-

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[1] A similar assimilation as that which occurs, e. g., in **zipj'(t)* 'to remain' and **nibj'(t)* 'to swim' ⇒ **zipp'(t)*, **nibb'(t)*; or in **širj'(t)* 'girl, daughter' ⇒ **širr'(t)* (cf. pp. 47 and 48).

[2] Parallel to Eg. *z'ṯ-w*: Prim. Eg. **zᵕ'i̯ṯ-iw-u* ⇒ **z'iṯ'w* ⇒ **'z'iṯ'w* ⇒ **'zzi̯ṯ('w)*, written in Coptic (S. B.) *ĕsĕt* (i. e. **'ssīt*) 'ground, lower part'.

[3] It was thus believed to be formed in the same way as, e. g., **sīm('w)* 'herb' or **pīn('w)* 'mouse'.

[4] The Eg. and Coptic words for 'field' are of the feminine

stantivised feminine adjective **š*nwīj*(t)* was: **š*nwīj*(t)* ⇒ **š*nnīj*(t)* (by progr. ass.)[1] ⇒ **š*nīj*(t)* (by simplific. of gem.) ⇒ **šnīj*(t)* ⇒ ***šnīj*(t)* ⇒ ***šnī* (by contraction), extant as S. B. **šnē* 'orchard'.

3) The late Eg. *šmw'-t* 'peg', where the consonant *w* represents, I believe, a *mater lectionis* for the vowel *ū*, should be interpreted as **šm'-w-t* and considered analogous to such nouns as Old Eg. *'ṯp-w-t* 'burden', vocalised **'*ṯpūw*(t)* ⇒ A. *etpū*, S. *etpō*, B. *etphō*. The Old Eg. vocalisation, therefore, was **š*m'ūw*t*, whence the further development: **š*m'ūw*(t)* ⇒ **š*mmūw*(t)* (by progr. ass.) ⇒ **š*mūw*(t)* (by simplification of geminate after *š*wā*) ⇒ **šmūw*(t)* ⇒ ***šmūw*(t)* ⇒ S. B. **šmū* (by contraction of the group *-ūw*-* to *-ū-*, just as in the preceding example the group *-īj*-* was contracted to *-ī-*).

4) Eg. *ḏ'j* 'ship' I read **ḏ'j-w* and vocalise **ḏå'j-*w*. The group *-'j-* ⇒ *-jj-* (by regr. ass.), so that here the *'āleph* at the end of a syllable was n o t contracted with the preceding vowel to *å*[1] (cf. p. 29). In the resulting form **ḏåjj*w* the final *-*w* was dropped and the geminate *-jj-*, awkward at the end of a word, simplified; hence S. B. *ǧoi̯*, A. *ǧai̯*. Now if **ḏå'j-*w* is rightly deduced from Prim. Eg. **ḏå'∪j-ìw-u*, then its Prim. Eg. pl. must have been **ḏå'∪j-ìw-åw-u*, a form that would fall under the operation of an accentual law stated by me elsewhere[2]. This law affects words of more than four syllables having the main stress originally on the first syllable and a secondary stress on the third, — in such words the two stresses changed places for the sake of rhythmical symmetry. According to this accentual law Prim. Eg. **ḏå'∪j-ìw-åw-u* would become **ḏå̀'∪j-íw-åw-u*. Its further evolution would be: **ḏå̀'∪j-íw-åw-u* ⇒ **ḏ*'jīw*w* (lengthening of *ĭ* in open stressed syllable) ⇒ **ḏ*''īw*w*[3] ⇒ **ḏ*'īw*w* (simplifi-

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gender: *sḫ-t* = **såḫ*(t)* ⇒ S. *sōše*, B. *šōši*; or *'ḫ-t* = **'åḫ*(t)* ⇒ S. *jōhe*, F. *jōhi* (B. *jōhi*); or *ḳ'j-t* = **ḳå'j*(t)* ⇒ A. **kaii̯** (written *kai̯e*), B. **koii̯**, shortened to *koi̯* (fem.).

[1] Cf. **ḫjåmw*t* 'women' ⇒ ***ḫjåmm*t*, etc. (cf. p. 32), **rišw*t* 'to rejoice' ⇒ **rešw*t*, **rašw*t* ⇒ **rešš*(t)*, **rašš*(t)* ⇒ A. *rěše*, F. *lěši*, S. *rǎše*, B. *rǎši*.

[2] In *Notes on Egyptian Accent as Evidenced in Coptic Nouns*, Poznań 1935.

[3] The group *-'j-* before the accent ⇒ *-''-* by assimilation; the contrary assimilation takes place in the sing., viz. *-'j-* ⇒ *-jj-*.

cation of geminate) $\Rightarrow$ **ḏ'īw*w* $\Rightarrow$ **ḏ'īw*w* $\Rightarrow$ **ḏḏīw*w* (progr. ass.) $\Rightarrow$ **ḏḏīw(*w)*, written in S. and B. *eǧēu̯* (with hidden gemination and *η* for *ī*).

VIII

The Evolution of the Diphthongs

The above digression into the realm of consonants has shown how geminates following a short stressed vowel can be simplified with simultaneous compensatory lengthening of the preceding vowel, and how geminates preceding a stressed vowel and following *š*wā* can likewise be simplified, without, however, occasioning any change in the stressed vowel, though not without causing the preceding *š*wā* to shift its place (cf. **r*mīnī* $\Rightarrow$ **r*mī* $\Rightarrow$ **ṛmī* $\Rightarrow$ ***rmī*). We must now return to the Eg. vowel system, one important domain of which still remains to be described, viz. the Eg. and Coptic diphthongs. There was only one series of diphthongs in Eg., with the first element short. This is quite natural, for whenever a long vowel was followed by one of the semivowels *i̯*, *u̯*, the semivowel constituted the initial consonant of the following syllable, without combining with the preceding long vowel in one phonetic whole. Thus the above-quoted ***šmūu̯*t* 'peg' was naturally divided into the three syllables ***š-mū-u̯*t*. Where, owing to the loss of a case-ending, the *-i̯* or *-u̯* came to stand at the end of a syllable, such a syllable was treated like any other syllable closed by a consonant, i. e. if it contained in Prim. Eg. a long vowel, this vowel was automatically shortened, as in **h∪rūw-u* 'day' = **h∪rūu̯-u* $\Rightarrow$ **hrŭu̯* $\Rightarrow$ **hrou̯* $\Rightarrow$ ***hrâu̯*, p. 49.

There are, however, some instances of a closed syllable containing a long vowel before final *i̯*, *u̯*, viz. S. B. A. *sīu̯* 'star',

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The reason seems to be that, in the sing., the group *-'j-* occurred after the accent. For the direction in which assimilation takes place often seems to depend on the place of the accent. Thus the group *-rj-* became *-jj-* by regressive assimilation when following the accent (cf. **mirj*t* 'to love' $\Rightarrow$ **mijj*t*, p. 59), but *-rr-* by progressive assimilation when preceding the accent (cf. **m*rjīt*j* 'favourite' $\Rightarrow$ **m*rrīt*j*, p. 41).

S. A. F. *tę̄ų* 'wind', S. *ʿsbūį* 'disciple', and the plurals S. B. *rōų* 'door', B. *ōų* 'great ones', S. B. *eğ̆ę̆ų* 'ships', βιου || βηυ 'souls' (extant only in Greek texts).

In my opinion we have to regard these words as very late abbreviations of earlier **sīųᵉ*, **tę̄ųᵉ* (= **tīųᵉ*), **rōųᵉ*, **ᵉğ̆ğ̆ēųᵉ*, etc. The historical evolution of the words in question would normally result in these forms ending in *šᵉwā*, but in the rapid allegro style of colloquial speech the *šᵉwa* would be dropped (as may be observed, e. g., in the examples quoted on p. 29: **kōmᵉw* ⇒ **kōmᵉ(w)* ⇒ *čōm* 'garden', **ḏōḏᵉ'* ⇒ **ḏōḏᵉ(')* ⇒ *ğōğ*. These words may be assumed to have kept the final *šᵉwā* in the lento pronunciation of deliberate utterance. In the spelling, however, only allegro forms happen to be extant, though in other cases the spellings do reflect the twofold pronunciation, e. g. S. A. *kăh* (allegro): B. *kăhi*, F. *kĕhi* (lento) 'soil'. Thus the above-quoted words, written *sīų*, *tę̄ų*, *ʿsbūį*, *rōų*, *ōų*, *eğ̆ę̆ų*, βιου || βηυ should properly be read as **sīųᵉ*, **tīųᵉ*, **ᵉsbūįᵉ*, **rōųᵉ*, **ōųᵉ*, **ᵉğ̆ğ̆īųᵉ*, **bīųᵉ*, being derived as follows:

1) Eg. *sb'* 'star' = **sībᵉ'* ⇒ **sīβᵉ'* (β = bilabial *v*) ⇒ **sīwᵉ'* ⇒ **sīųᵉ*, written *sīų*, but really dissyllabic in pronunciation, viz. **sī-ųᵉ*.

2) Eg. **ṯ'w* 'wind' appears to be a defective spelling for **ṯ'w-w* (with the nominal suffix **-iw*): **ṯi'wᵉw* ⇒ **tīwᵉw* (for analogous cases of *-i'-* passing into *-ī-* see p. 46) ⇒ **tīųᵉ*, written *tę̄ų* (= *tīų*).

3) Eg. *sb'j* 'disciple' = **sb'j-w* (as in the preceding instance) = **ᵉsbu'jᵉw* ⇒ **ᵉsbūjᵉw* ⇒ **ᵉsbūįᵉ*, written *sbūį*.

4) Eg. *r'* 'mouth, aperture, door' = **rå'-u* ⇒ **rå'*, written S. B. A. *ro*, F. *la*. The plural is not formed from the biliteral root of the singular, but from a triliteral root **r'w* (expanded by *-w*)[1]: **rå̆'◡w-å̆w-u* ⇒ **rå̆'wᵉw* ⇒ **råwᵉw* ⇒ **råųᵉ*, written *rōų* (S. B).

5) Eg. *ᶜ'* 'great' = **ᶜå'-u* ⇒ **ᶜå'* ⇒ S. B. A. *a*, F. *o*. The plural is again formed from a triliteral root, i. e. one expanded

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[1] A similar alternation of a biliteral root in the singular and a triliteral one in the plural occurs in Eg. *sn* 'brother': sing. **sån-u* ⇒ **sån* = S. B. *son*, A. F. *san*; pl. from the expanded root **snw*, hence **sånĭw-åw-u* ⇒ **snīwᵉw* ⇒ **ᵉsnīwᵉw* ⇒ **ᵉsnīųᵉ*, written *ʿsnēų* in all the dialects.

by *w* or *j*, hence from the root $*{}^{\epsilon}{}'w \parallel *{}^{\epsilon}{}'j$. In the former case the plural would sound $*{}^{\epsilon}\breve{a}'\smile w\text{-}\breve{a}\breve{a}w\text{-}u$, in the latter $*{}^{\epsilon}\breve{a}'\smile j\text{-}\breve{a}\breve{a}w\text{-}u$. The former would give $*{}^{\epsilon}\breve{a}'w^{\epsilon}w \rightleftharpoons *{}^{\epsilon}\overset{\text{ou}}{\breve{a}}w^{\epsilon}w \rightleftharpoons *{}^{\epsilon}\overset{\text{ou}}{\breve{a}}u^{\epsilon}$, written *ôu* (B.); the latter would develop somewhat differently: $*{}^{\epsilon}\breve{a}'j^{\epsilon}w \rightleftharpoons *{}^{\epsilon}\breve{a}jj^{\epsilon}w$ (regr. assim.) $\rightleftharpoons *{}^{\epsilon}\breve{a}jj^{\epsilon}$, written *oi* (S. B.), *ai* (F. A.).

6) The S. B. plural *ʿǧéu* 'ships' (cf. p. 52 f.) is to be interpreted similarly, to wit as $*e\breve{g}\acute{e}u^{\epsilon} = *{}^{\epsilon}\breve{g}\breve{g}\acute{i}w^{\epsilon} \leftharpoons *{}^{\epsilon}\breve{d}\breve{d}\bar{i}w^{\epsilon}(w)$.

The diphthongs mentioned in the last few examples belong to the category of secondary diphthongs, which arose only at the end of the evolutionary period of Eg., thus preserving their long first element down to Coptic times. But in the Prim. Eg. diphthongs the first element is always short and remains so down to the latest times. This fact tends to be concealed by the waywardness of the Coptic spelling, which is particularly inconsistent in its methods of representing the diphthongs. The first element is, indeed, often written with a short vowel-letter, but often also with a long one; especially the B. scribes display a marked preference for the latter way of writing them, e. g.: S. *mou* 'water' (A. F. *mau*): B. *mōu*; S. *tou* 'mountain' (A. F. *tau*): B. *tōu*; S. *main* 'sign, miracle' $\leftharpoons *mei^{\epsilon}w$ (A. *meine*): B. *mēine* (F. *mēin*); S. *sain* 'physician' $\leftharpoons *sei^{\epsilon}w$: B. *sēini*. There can be no doubt, however, that all these diphthongs, whatever their Coptic spelling, are short.

Prim. Eg. possessed the following diphthongs: *åi, ui, ii, åu, uu, iu*. In the course of time, as we have seen, Eg. *ŭ* and *å* were merged in one phoneme, and consequently the number of diphthongs was reduced to four: *åi, åu, ii, iu*. The *ĭ* of *ii, iu* followed its normal line of evolution, becoming *ĕ*, then *ă*, and the latter easily interchanged with palatal *ă*; hence the diphthongs *ii, iu* $\rightleftharpoons$ *ei, eu* $\rightleftharpoons$ *äi, äu* ~ *ai, au* respectively. The actual Coptic diphthongs are: *åi, åu, äi* ~ *ai, äu* ~ *au*. The practical identity of the diphthongs *äi* ~ *ai*, due to the advanced tongue-position of palatal *ă*, was noticed on p. 43. It is for the same reason that two diphthongs at first sight resembling one another, viz. *ai* and *åi*, were accurately distinguished in the Coptic pronunciation, as appears from the spelling. A similar variation as in the first element of *äi* ~ *ai* occurs in that of *äu* ~ *au*, where it is attested by S. and B. Here again *au* was never confounded with *åu*, whence it may be inferred that in the Coptic diphthong *au*

the second element did not exercise any assimilating influence upon the first. This, however, does not apply to the mutual assimilation of the elements of a diphthong, more exactly of the first to the second, that must have taken place when the diphthong was monophthongised, as sometimes happened in Coptic. These cases will be treated on p. 57.

The orthographical representation of the diphthongs in the different Coptic dialects is shown in the following table:

Dialectal Spellings of Coptic Diphthongs

Pronunciation	Spelling			
	S.	B.	A.	F.
å i̯	*o i̯* (*ō i̯*), *o e̯*	*ō i̯* (*o i̯*)	*a i̯*	*a i̯*, *a e̯*
å u̯	*o u̯* (*ō u̯*)	*ō u̯* (*o u̯*)	*a u̯*	*a u̯*
ä i̯ ~ *a i̯*	*a i̯*, *a e̯*, *e i̯*	*a i̯*, *ē i̯* (*e i̯*)	*e i̯* (*ē i̯*), *a i̯*, *a e̯*	*e i̯* (*ē i̯*, *ē ē i̯*)
ä u̯ ~ *a u̯*	*a u̯*, *e u̯*	*a u̯*, *e u̯*	*e u̯*	*ē u̯* (*e u̯*)

As the above table shows, the first elements of the Coptic diphthongs, though always phonetically short, are fairly often written η and ω. In my opinion, these letters, when thus used in writing the diphthongs, must have had other quantitative and qualitative values than when they occurred single: the *ēta* of the diphthongs *ē i̯*, *ē u̯* does not stand for long *ī* (its normal value), but for a short, wide *ä* (normally written ε in Coptic); and the *ō-mega* of the diphthongs *ō i̯*, *ō u̯* denotes a short, wide sound, hence *ŏ* = *å*, in spite of the fact that elsewhere it has the value *ō*/*ū*. The *ēta*, indeed, sometimes has the value of a short, wide *ä*, even where it does not form part of a diphthong, as appears from certain cases where it occurs in closed syllable, and where alternative spellings exist (either in the same or another dialect) with *ĕ-psilon*, e. g. F. *jēlli* ‖ *jĕlli* (= **jäll*[i]), S. B. *jal* 'mirror, gleam';

F. *kēlli*, S. *kᵉlle* (= *källᵉ*), B. *keli* || *kal*, A. *kᵉl* (= **käl*) 'botl, bar'; S. *jep-* || *jēp-*, B. *jeb-* = *status constructus* of *jope* 'work', etc.

The diphthongs *aį* (= *äį* || *eį*) and **åį* (⇒ *oį* || *aį*) are sometimes written *ae*, *oe*, which must, in my opinion, be interpreted as *aę*, *oę*, just as in the Latin diphthongs the second element is written *e*: *ae*, *oe* (e. g. *coepio* = **co-ipio* ⇐ **co-apio*, or *Caesar* = Καῖσαρ, etc.), e. g.: S. *kaįse* 'funeral', B. *kaįsi*, A. *keese*: Old Coptic *kaēse* (= **kaęse* = **kaįse*); S. B. *ų̈oį* 'woe!', A. *ų̈aį*: F. *ų̈ae* (= **ų̈aę* = **ų̈aį*); F. *neį* 'to pity', B. *naį*: A. *nae* (= **naę* = **naį*); B. *baį* 'palm': A. *bae* (= **baę* = **baį*); F. A. *ᵓčbaį* 'arm', B. *ᵓğphoį*, S. *ᵓčboį* || *ᵓčboe* (= *ᵓčboę*).

Final *aį* (= *äį* || *eį*) and **åi* (⇒ *oį* || *aį*) sometimes lose their second element, i. e. are monophthongised to *-a* and *-o*. This is particularly frequent in S. and A., cf. A_2 *ų̈eį* 'one', A. *ų̈e*, B. *ų̈aį*: S. *ų̈a*; B. *šaį* 'nose': S. *ša* (A. *še*); B. *ᵓthų̈aį* 'threshold': S. *ᵓtų̈a*; B. *ᵓmbaį* 'spindle': S. *ᵓmpaį* || *ᵓmpa*; B. *naį* 'to pity', F. *neį*, A. *nae* (= **naę* = **naį*): S. *na* (also written *naa*); B. *baį* 'palm', A. *bae*: S. *ba*; A. *taį* (⇐ **taįįᵉ*) 'share', B. *toį*: S. *toe* (= **toę* = **toį*) || *to*; A. *ğaįe* (= **ğåįįᵉ* ⇐ **ğå'jᵉt*) 'wall', B. *ğoį*: S. *ğoę* || *ğo*; F. *ai* (qualitative of *īre* 'to do'), B. *oį*: S. *o*.

In A., final *-eų̈* becomes normally *-o* (written generally *ŏ-mikron*, sometimes *ō-mega*). There may have been an intermediate stage *-oų̈*, thus: *-eų̈* ⇒ **-oų̈* ⇒ *-o*. Examples F. A_2 *neų̈* 1) 'time', 2) 'to see', S. B. *naų̈*: A. *nŏ*; F. A_2 *meų̈* 'mother', S. B. *maų̈*: A. *mŏ* || *mō*; F. A_2 *ᵓmmeų̈* 'there', S. B. *ᵓmmaų̈*: A. *ᵓmmŏ*; S. *ᵓhnaų̈* 'vessel, tool, thing': S. A. *ᵓhnŏ* (⇐ **hnoų̈*) or A. *ᵓhne* (⇐ **ᵓhneų̈*).

The final groups **-åjjᵉ*, **-äjjᵉ* ~ **-ajjᵉ*, or rather **-åį-jᵉ*, **-äį-jᵉ* ~ **-aį-jᵉ* deserve special attention, especially in S. The final *-ᵉ* of these groups (written *-e* in S. and A., *-i* in B. and F.) is of threefold origin, being derived either from the feminine suffix **-ᵉt* ⇐ **-åt-* or from the masculine suffix **-ᵉw* ⇐ **-iw-* or, lastly, from the plural suffix **-ᵉw* ⇐ **-åw-*.

The first of these endings, i. e. **-åjjᵉ*, is partly preserved in A., where it is written *-aje* (with hidden gemination). But sometimes in A., and always in S. and B., it loses its final *šᵉwā*, the result being the final diphthong *-åį*, written *-aį* in A. and F., *-oį* in S. and B. (sometimes *ae* = *aę* = *aį*, and *oe* = *oę* respectively); in S. such a final *oį* (*oę*) is often, as has been said in the foregoing, monophthongised to *-o*. Here are a few examples:

1) Eg. *tj-t* 'sign, mark', which I interpret as **tjj-t* and vocalise **tåjᵉ(t)*[1], becomes A. *taie* (= **tåjjᵉ*), B. *thoi̯* (⇐ **thåi̯i̯ᵉ*), S. *toi̯*, written *toe* = **toe̯*.

2) Eg. *dnj-t* 'share' = **dånjᵉt* ⇒ **dåjjᵉt*[2] ⇒ A. *tai̯* (= **tåi̯* ⇐ **tåijᵉ(t)*), B. *toi̯* (instead of the expected **thoi̯* = **thåi̯*), S. *toe* (= **toe̯* = **toi̯*) beside monophthongised *tŏ*.

3) Late Eg. *ḏrj-t* 'wall' = **ḏårjᵉt* ⇒ *ḏåjjᵉt* ⇒ A. *ǧaie*, B. *ǧoi̯*, S. *ǧoe̯* ‖ *ǧŏ*.

The ending **-äjjᵉ* ~ **-ajjᵉ* is derived from older **-ijjᵉ*. As in the preceding examples, the final *šᵉwā* is sometimes preserved and sometimes dropped. If it is dropped, the diphthong **-äi̯* ~ **-ai̯* comes to stand in the final position and often remains unchanged; it is then written *-ei̯* or *-ai̯*. There are, however, cases in which this **-äi̯* is monophthongised to *-ä* (by the loss of final *-i̯*, just as in *åi̯* ⇒ *å*). Such a final *-ä* is written *ĕ-psilon*, just as the *-å* from *-åi̯* is written *ŏ-mikron*. It was said above that the diphthong *-ai̯* is sometimes shortened to *-ă* (in S.); this must now be stated more comprehensively: the diphthong **-äi̯* (⇐ older **-ii̯*) easily interchanges with **-ai̯*; at both stages of its development it can undergo monophthongisation (by loss of the second element); in other words, **-äi* can 1) be monophthongised to *-ä*; 2) become *-ai̯*, which in its turn either remains or is monophthongised to *-a* (examples have been given on p. 57).

The ending **-ijjᵉ*, then, passes through these evolutionary stages: **-ijjᵉ* ⇒ **-äjjᵉ* ~ **-ajjᵉ* ⇒ **-äi̯* ⟨ **-ä* ; **-ai̯* → **-a* ⟩.

In certain cases, however, another evolution may be traced: **-ijjᵉ* may become **-ījᵉ* by quantitative compensation; and, **-ījᵉ* always losing its final *šᵉwā*, the resulting group **-īj* is contracted to long *ī*, mostly written *ēta*.

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[1] I derive this word from **tåwj-ᵉt* (by assimilation) and regard it as etymologically related to Hebrew *tāu̯* 'sign' and 'tau' = the name of the letter *t*, which, in the shape of a simple cross, had been in use long before the invention of the alphabet as the 'sign' par excellence. Cf. the Arabic *tiwā'-un* '(branded) mark', derived from **tiwăw-un* or **tiwăj-un*.

[2] The group *-nj-* ⇒ *-jj-* by regressive assimilation, just as *-rj-* ⇒ *-jj-* in the following example.

Examples: 1) Eg. *mrj-t* 'to love' = **mirjᵉt* ⩦ **mijjᵉt* (by progr. ass.) ⩦ **mejjᵉt* ⩦ **mäjjᵉ(t)* ⩦ **majjᵉ(t)* ⩦ A. *meie*, A_2 *maie* (both with hidden gemination of *-j-*), B. *meį*, F. *mēį* (both = **mäį*), S. *meį* || *me* (= **mäį* || **mä* with monophthongisation of diphthong).

2) Eg. *h'j-t* 'to descend, fall' = **hi'jᵉt* ⩦ **hijjᵉt* (by regr. ass.) ⩦ **hejjᵉt* ⩦ **häjjᵉ(t)* ~ **hajjᵉ(t)* ⩦ A. *heie*, A_2 *haie*, B. *heį* || *hēį*, F. *hē(ē)į* (these B. and F. spellings reflect, in the peculiar orthography of those dialects, the form **häį*), S. *hĕ*, also written *hĕĕ*; the last spelling is strange, since double vowels are rare finally; it may be intended to denote some kind of secondary vowel-lengthening under the influence of the stress, though this explanation would seem to be contradicted by *hĕ*; it is, perhaps, safer to see in the spelling *hĕĕ* merely a scribal caprice (like S. *na* || *naa* 'to pity', quoted on p. 57).

3) Eg. *šn-t* '100' = *šnj-t* = **šinjᵉt* ⩦ **šijjᵉt* ⩦ **šejjᵉt* ⩦ **šäjjᵉ(t)* ⩦ S. B. A. *šĕ*.

4) E. *šm* 'to go' probably stands for **šmj*. Its infinitive was **šmj-t* = **šimjᵉt*, where the *m* would be exposed to the palatalising influence of the following *-j-*. But palatalised *m* easily becomes palatalised *n* [1], hence **šimjᵉt* ⩦ **šinjᵉt* ⩦ **šijjᵉt* [2] ⩦ **šejjᵉt* ⩦ **šäjjᵉ(t)* ⩦ S. B. A. *šĕ*. The F. spelling *šē* may be interpreted in a twofold manner: either *ēta* has here the value of wide *ä* (just as in the diphthongs, cf. p. 56), or it must be taken to mean *ī* (as usually), i. e. F. *šē* would then be pronounced **šī* and derived from older **šījᵉt*, which may have arisen from still older **šijjᵉt* by quantitative compensation. The latter alternative (*šē* = **šī*) is, in my opinion, the more probably one.

5) The third Coptic word pronounced *še* means 'hog' and is, I believe, derived from Eg. *š'j* = **š'j-w* = **ši'jᵉw* ⩦ **šijjᵉw* (by regr. ass., like example 2 above: **hi'jᵉt* ⩦ **hijjᵉt*) ⩦ **šejjᵉw* ⩦ **šäjjᵉ(w)* ⩦ **šäį* ⩦ S. *šĕ*.

6) Eg. *p-t* (fem.) 'heaven' is derived from the root *wpj* 'to separate', being that which was, according to the ancient Egyp-

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[1] Cf., e. g., the Greek *βαμjω ⩦ *βανjω ⩦ βαινω, or the Latin **vemjō* ⩦ **venjō* = *venio*.

[2] This is the same kind of assimilation as that which occurs in *dni-t* 'share' = **dånjᵉ(t)* ⩦ **dåjjᵉ(t)*, etc.; cf. page 58, example 2 and note.

tian cosmogony, 'separated' from, or raised above, the earth by the god of the atmosphere *Šw*[1]. The relation of these stems, or rather roots, may be considered analogous to such cases as Sem. **lid-at-u* 'birth' (Arabic *lid-at*, Hebrew *lâḏăṯ*) beside *w-ld* 'to give birth' (Arabic *walad-a*, Hebrew *jālāḏ*); or Hebrew *ʿēḏāʰ* 'assembly' beside the verb **jāʿáḏ* ⇐ Prim. Sem. **w-ʿḏ*; or Hebrew *ʿēṣāʰ* 'advice' beside the verb *jāʿáṣ* ⇐ Prim. Sem. **w-ʿṣ*; or Hebrew *ḥēmāʰ* 'heat', beside the verb *jāḥám* ⇐ Prim. Sem. **w-ḥm*. Eg. *p-t* = **pj-t*, vocalised **pĺj-åt-u* ⇒ **pījʷt* ⇒ **pijjʷt* (by quantitative compensation) ⇒ **pejjʷt* ⇒ **päjjʷ(t)* ⇒ **päi̯* ⇒ S. A. *pĕ*, B. *phĕ*. The F. form *pē* is ambiguous, like F. *šē* 'to go' (example 4 above).

7) In a similar way I derive S. *hĕ*, B. A. *ḫĕ*, F. *hē* 'manner' from late Eg. *ḫ-t* = **ḫj-t*.

8) Eg. *ḥrw* 'upper side, surface, top' and *ḫrw* 'lower side, bottom' I regard as defective spellings for **ḥrj-w* and **ḫrj-w* and see in both of them forms of the same type as *z't-w* 'soil, bottom, floor': **ḥårĺj-iw-u*, **ḫårĺj-iw-u*[2] ⇒ **ḥrījʷw*, **ḫrījʷw* ⇒ **ᵉḥrījʷw*, **ᵉḫrījʷw* ⇒ **ᵉḥrĭjjʷw*, **ᵉḫrĭjjʷw* (by quant. compens.) ⇒ **ᵉḥrejjʷw*, **ᵉḫrejjʷw* = **ᵉḥräi̯-j(ᵉw)*, **ᵉḫräi̯-j(ᵉw)* ⇒ **ᵉḥräi̯*, **ᵉḫräi̯* ~ **ᵉḥraı̯*, **ᵉḫraı̯* ⇒ B. *ᵉhrēi̯*, *ᵉḫrēi̯*, A. *ᵉhrēi̯*, *ᵉḫrēi̯* (also *ᵃḫrēi̯*[3]), F. *ᵉhlēi̯* (both), S. *ᵉhraı̯* (both). In all these forms the spelling *ēi̯* represents, in accordance with what was said on p. 56, the short diphthong *äi̯*; in S. *ᵉhraı̯* the diphthong *-aı̯* is preserved and not monophthongised to *a* or *ä*, as happened in other words with the same ending. Thus the monophthongisation of such a final diphthong is seen to be entirely optional, or, perhaps, to depend on conditions the discovery of which is, for the present, impossible.

9) From the noun *ḥrw* = **ḥrj-w* 'upper side, surface', treated in the preceding paragraph, was formed, by means of the adjectival suffix **-ĭj-*, the adjective 'upper': **ḥårĺj-iw-ĭj-u* ⇒ **ᵉḥrĭjwʲj* ⇒ **ᵉḥrijjʲj* (by progr. ass.) ⇒ **ᵉḥrejjʲj* ⇒ **ᵉḥräi̯-jʲj*, and then shortened to **ᵉḥräi̯* ⇒ S. B. A. **ᵉhrä*, written *ᵉhrĕ*, with monophthongisation of the final diphthong.

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[1] Cf. K. Sethe, *Urgeschichte und älteste Religion der alten Ägypter*, Leipzig 1930, p. 58, note 1.

[2] Corresponding to the Semitic type *ḳatīl-u*, but expanded by the suffix *-iw-*.

[3] = **ᵃḫreı̯*; when followed by a velar fricative, the prosthetic *šᵉwā* may receive the colouring of *ḫāṯēph páṯaḥ* (optionally).

10) Both the last nouns, viz. *ḥrw* = **ḥrj-w* 'surface' and *ẖrw* = **ẖrj-w* 'bottom', are properly speaking substantivised adjectives formed with the nominal suffix *-w* = **-iw*. By rejecting the suffix we arrive at simpler adjectival forms, vocalised according to type *ḳatīl-u*: **ḥårī́j-u* 'upper', **ẖårī́j-u* 'lower', and these, again, are derived from the roots *tertiae infirmae* **ḥrj* 'to be higher, at the top'[1] and **ẖrj* 'to be lower, at the bottom' respectively. The former corresponds to the Arabic *ʿalīj-un* 'nobilis, eminentior', the latter is extant in Eg. in the fem. form (with substantival meaning) 'need, dish, food' as *ẖr-t*, i. e. **ẖrj-t* = Prim. Eg. **ẖårī́j-åt-u* ⇒ **ẖrījᵉt* ⇒ **ᵉẖrījᵉt* ⇒ **ᵉẖrĭjjᵉt* (by quant. compens.) ⇒ **ᵉẖrejjᵉ(t)* ⇒ **ᵉẖräi̯-jᵉ(t)* ⇒ **ᵉẖräi̯*, monophthongised to **ᵉẖrä*, written in A. and B. *ᵉḫrĕ*, in S. *ᵉhrĕ*. The F. form *ᵉhrē* is again ambiguous (like F. *šē* 'to go', nr. 4 above).

11) The decimal numerals '40', '60', '70', '80' are plurals of adjectives derived by means of the suffix **-īj-* from nouns having the masculine nominal suffix **-ᵉw-* ⇒ **-iw-* (which I hope to treat more in detail in a special work devoted to the etymological analysis of the Eg. and Coptic numerals). Hence they ended in **-iw-īj-åw-u* ⇒ **-iwjᵉw* ⇒ **-ijjᵉw* (by regr. ass.) ⇒ **-ejjᵉ(w)* ⇒ **-äi̯-jᵉ(w)*, shortened to **-äi̯* and eventually monophthongised to **-ä*, written *-ĕ*. Thus the Coptic forms of these numerals are: **ᵉḥmä* ⇒ *ᵉhmĕ* '40' (S. A. B.), **ᵉssä* ⇒ *sĕ* '60' (S. B. A.), **sᵉfḫä* ⇒ **sᵉḫfä* (by metathesis) ⇒ **sᵉšfä* ⇒ A. *ᵉḫbĕ* (for **sᵉḫfĕ*) or *ᵉšbĕ* (for **sᵉšfĕ* ⇒ **sᵉšbĕ*), S. B. *ᵉšfĕ* or *ᵉšbĕ* (shortened from **šᵉšfä* ⇐ **sᵉšfä*), '70', and *ᵉḫmĕne* (B.) *ᵉhmĕne* (S.) '80'[2].

12) The numeral '90' is formed in what is fundamentally the same way, but here the phonetic evolution of the ending **-iwjᵉw* is different, branching out in two directions: one in S.,

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[1] The Eg. counterpart of the Semitic root *ʿlj* || *ʿlw* 'to be tall, high'. The alternation *r* || *l* is very common, and the relation ʿ : *ḥ* does not represent any difficulty either; for the only difference between these glottal fricatives consists in the former being voiced, and the latter voiceless.

[2] S. *ᵉhmĕne* is, of course, likewise derived from **ᵉḫmĕne*, which primitive Coptic form should, I believe, be read **ᵉḫménne* and deduced from **ᵉḫmᵉnnắ* ⇐ **ᵉḫmᵉnwéjjᵉ(w)* etc. This will be explained more at length in my forthcoming work on the Eg. numerals, where I shall also analyse the alternative B. form *ḫámne*.

the other in B.[1]. In S. the development was the following: *-*iwj*^{e}*w* ⇒ *-*ijj*^{e}*w* (by regr. ass.) ⇒ *-*ejj*^{e}*w* ⇒ *-*éjju*[2] ⇒ *-*ä̯i̯-ju* ~ *-*ái̯-ju*; in B. it was: *-*iwj*^{i}*w* ⇒ *-*iww*^{i}*w* (by *progr.* ass.) ⇒ *-*eww*^{i}(*w*) ⇒ *-*äu̯u̯*^{i}. Hence the numeral '90' appears in S. as *p*^{e}*stái̯u* (with hidden gemination), and in B. as *pistéu̯i* (= *p*^{i}*stäu̯u̯*^{i}).

13) The same phonetic evolution as in '90' occurs in the numeral '50', which, derived from Prim. Eg. **diwj*^{e}*w*, passes in S. through **dijj*^{e}*w* ⇒ **dejj*^{e}*w* ⇒ **täi̯-ju* ~ **tai̯-ju* to *tai̯u* (with hidden gemination), in B. through **diww*^{i}*w* ⇒ **deww*^{i}*w* ⇒ **täu̯u̯*^{i}(*u̯*) to *teu̯i*. Besides *teu̯i*, B. also has *tai̯u*, which may be borrowed from S. Yet in view of the existence of such B. plurals as *amai̯u* (= **amái̯-ju*) 'seas'[3] and *sebthai̯u* (= **sebthái̯-ju*) 'walls'[4], whose *-ai̯u* is, in my opinion, likewise derived from *-*iwj*^{e}*w*, this group may well have had a double result in B.: either *-eu̯i* (= *-*äu̯u̯*^{i}) or *-ai̯u* (= **ái̯i̯u*); the forms with the latter ending might then be regarded as genuine B. forms, though identical with the corresponding S. forms.

A. has *tei̯u̯e* '50', likewise derived from **diwj*^{e}*w* ⇒ **dewj*^{e}*w* ⇒ **täwj*^{e}(*w*), but in this dialect the group *-wj-* was not assimilated at all, whether regressively or progressively, but became *-jw-* by metathesis.

14) Eg. *ḏw* 'mountain' is apparently a defective spelling for **ḏwj-w*. I imagine the development of the singular to have been something like the following: P. Eg. **ḏåw⌣j-ìw-u* ⇒ **ḏåwj*^{e}*w* ⇒ **ḏåww*^{e}*w* (progr. assim.) = **ḏåu̯u̯*^{e}*u̯* ⇒ **ḏåu̯u̯*^{e} ⇒ **dåu̯u̯*^{e} ⇒ **tåu̯u̯*^{e}, written S. *tou̯*, B. *tōu̯* (with ω, as usually in that dialect, cf. p. 55), A. F. *tau̯*. The Coptic plural does not appear to be the continuation of the earlier Eg. pl. formed, like the plurals analysed in the foregoing, with the suffix *-åw-*. In my opinion it

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[1] The A. and F. forms of this numeral ('90') are non-extant.

[2] Final *-^{e}*w* was contracted to *-u*; the same contraction is frequent at the beginning of words, e. g. *^{e}*wsī́r*^{e}*j* ⇒ **usī́r*^{e}(*j*) »'Οσιρις« (in Old Coptic *usī́re*, *usī́ri*); *^{e}*whår* 'dog' ⇒ B. *uhŏ́r*, S. *uhŏ́r* (also written *uhŏŏr*) or *uhắr* (from A.); *^{e}*wnū́w*^{e}(*t*) 'hour' ⇒ S. B. A. F. *unū́*; *^{e}*wḏéi̯* 'to be whole, well' ⇒ F. A. *uǧéi̯*, S. B. A. *uǧái̯*.

[3] From the singular *jom* 'sea' (S. B. *jom*, A. F. *jam*).

[4] From the singular S. B. *sŏb*^{e}*t* 'wall', F. *săb*^{e}*t*, A. *sabte* ⇐ Eg. *sbtj* = **såbt*^{e}(*j*).

is to be explained quite differently, namely as a singular feminine noun of collective meaning formed from the adjectival root (which became substantive in function) with the suffix _-īj-_. The evolution would be approximately as follows: P. Eg. _*d̠ắw‿j-ȉj-åt-u_ ⇛ _*d̠å̀w‿j-ī́j-åt-u_ (according to the principle of accentuation referred to on p. 52) ⇛ _*d̠_^{e}_wjīj_^{e}_t_ ⇛ _*dujī́j_^{e}_(t)_ (for the passage of _-_^{e}_w-_ ⇛ _-u-_ see p. 62, note 2) ⇛ _*tujī́j_^{e}, ultimately shortened to _*tujī́_, written S. _tujē_, A. _tujei̯_ (_-ei̯_ = _ī_)[1]. The A. dialect has still another plural, written _tujeu̯e_, which apparently represents _*tu-jäu̯u̯_^{e}. This form must have arisen by the ending of the A. feminine plurals (_*-äu̯u̯_^{e}, corresponding to the _*-åu̯u̯_^{e} of S. B., written _-ou̯e_ in S., _-ōu̯i_ in B.) being appended to the above-mentioned collective noun _*tujī́_.

15) In a similar way we may explain the S. plural _*j_^{e}_rē_ 'rivers', which stands for _*j_^{e}_rrī_ (with hidden gemination, preserved here after _š_^{e}_wā_ in spite of the law discussed above, p. 50 ff.)[2], apparently derived from an original feminine noun of collective meaning formed from a substantivised adjective: _*jắt‿r-ȉj-åt-u_ ⇛ _*jå̀t‿r-ī́j-åt-u_ ⇛ _*j_^{e}_trī́j_^{e}_t_ ⇛ _*j_^{e}_rrīj_^{e}_t_ (regr. assim.) ⇛ _j_^{e}_rrīj_^{e}, ultimately shortened to _*j_^{e}_rrī_, written in S. _j_^{e}_rē_.

With the above account of the Coptic diphthongs we have exhausted the scope of our enquiry into the nature and history of the Egyptian vowels. Many further details would be required to fill in the foregoing sketch, details which it is, for the most part, not in our power to supply. A few hurried and tantalising glimpses into the history of the Egyptian vowels is all that is afforded by the conclusions of comparative Semitic philology, by the transcriptions of the El-ʿAmārna and the later Assyrian and Greek eras, before we reach the relatively plentiful materials of the Coptic period. But the evolution of the Egyptian vowels during the long intervening centuries remains shrouded in mystery.

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[1] In one instance this plural is spelt _tuai̯_, presumably a faulty spelling instead of _tujei̯_ = _*tujī́_.

[2] Had this _-rr-_ really been simplified, i. e. had _*j_^{e}_rrī_ really become _*j_^{e}_rī_, the further evolution of the word would have been _*jrī_ ⇛ _*_^{e}_jrī_ ⇛ _*irī́_ (like that of B. _*r_^{e}_mjī_ 'tear' ⇛ _*r_^{e}_mmī_ ⇛ _*r_^{e}_mī_ ⇛ _*rmī_ ⇛ _*_^{e}_rmī_, written _ermē_, cf. p. 51).

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